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PUBLISHED QUARTERLY BY
THE UNITED STATES CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS

JULY, 1938

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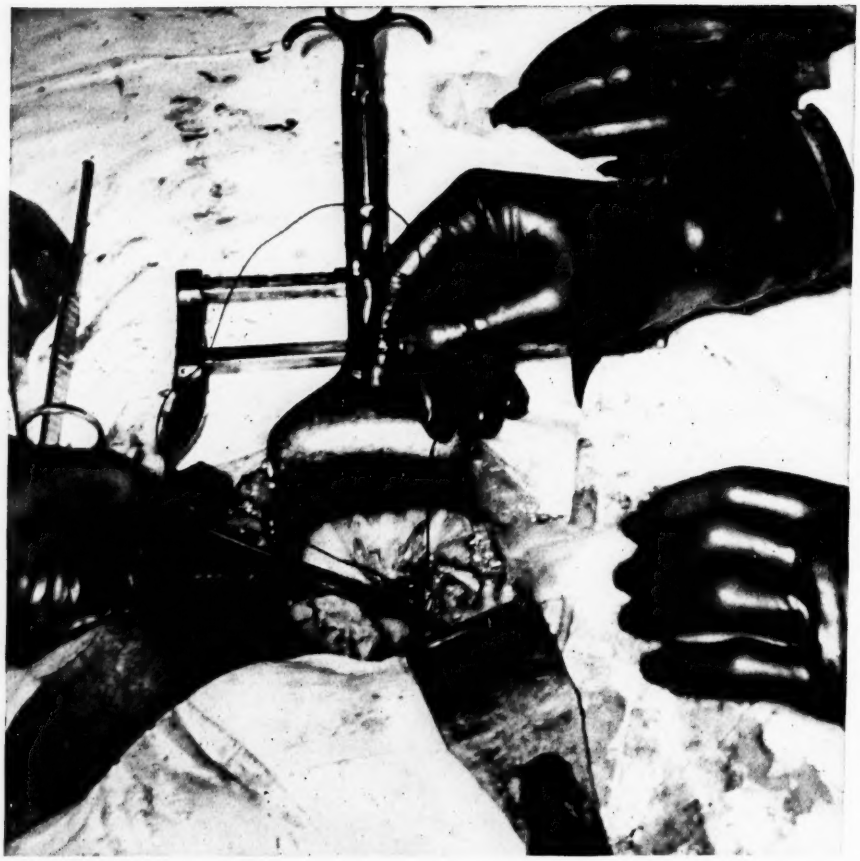

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1. There is need for an International liaison between the Colleges and Surgical Societies now existing throughout the world.

2. It is a purely scientific organization incorporated not for profit and solely for the advancement of the Art and Science of Surgery in all its branches.

3. The chapters of the various countries representing the International College of Surgeons are autonomous in their functions and are free to formulate by-laws to suit the need of their respective countries and yet be governed by a central, unbiased body of eminent surgeons.

4. The Members and Fellows of the American chapter of the International College of Surgeons are obliged to live up to the code of ethics of the American Medical Association and members and fellows of chapters of other countries must rigidly adhere to the code of ethics laid down by their respective countries.

5. The object of the International College, as its charter recites is: "to gather together eminent surgeons of each Nation, Free State and Dominion in the world into one great organization with the thought in view that the personal exchange of views of the leaders in surgery will do much to advance the science of surgery and also promote a better understanding between those who in every country are working for the good of humanity".

6. It proposes to cultivate and disseminate knowledge of the history of surgery in all its phases including surgical pathology from the dawn of civilization to our time.

7. The preceding purpose has been made possible through the generosity of Mrs. William Randolph Hearst who donated the grounds and building in which to house the museum which is to be known as the Millicent Hearst Foundation.

8. It will award prizes and distinctions for theses and contributions to be passed upon by an outstanding committee of surgeons. These awards will be given to any surgeon, anywhere in the world regardless of nationality, creed or race.

9. Its charter provides for an international endeavor to elevate the principles and practices of surgery in every country.

10. Through its International Committees, its assemblies, bulletins and Transactions, it will disseminate knowledge of the constructive surgical advances made.

11. It aspires to cooperation, the creation of an inflexible "esprit de corps" and staunchly discourages antagonisms.

12. It is believed that no surgeon of eminence to whom the ideals of his calling are close to his heart will oppose, but on the contrary, will aid the advancement of this organization.

13. It is strictly non-sectarian and non-political.

14. Its ideals are based on Pasteur's aphorism: "La science n'a pas de patrie parce que le savoir est le patrimoine de l'humanité, le flambeau qui eclaire le mande" and its motto — "Pro Omni Humanitate."

15. It is decidedly against arbitrary restriction of merit, is free from prejudices, and aspires to the ideal of "Palman qui feruit mereat": "Accord palms to the meritorious."

16. The Executive Councils of each

Chapter shall zealously guard the activities of their respective units.

17. It is free from the taint of personal gain. Not a single dollar has been paid to anyone of the organization for services. On the contrary, voluntary contributions have been received to carry on the organization work.

18. Every dollar collected from Fellowship fees, Donations and Dues will be spent for a definite, specific purpose to further the advancement of the functions of the College enumerated above.

19. Its Funds are safeguarded by an Executive Council and a Board of Trustees.

20. It will recognize the SURGEON AND HIS ACCOMPLISHMENTS and will not be influenced by his financial, political or other irrelevant status.

Editorials

THE UNITED STATES CHAPTER, THE AMERICAN MEDICAL ASSOCIATION AND AMERICAN COLLEGE OF SURGEONS

LOYALTY, honor and ethics intergrate so closely as to be practically coincident.

Hence, any group in an organized profession, especially in organized medicine —must render absolute loyalty to the representative National governing body or stand both accused and convinced of ethical misconduct.

In the United States this organized constituted authority is vested in the American Medical Association. Since 1847 this association has guided the medical profession in America through reefs and shoals and storms that would have wrecked a group less able and less strong through that "very chastity of honour" so inherent to its structure. The least that subsidiary medical and surgical bodies in the United States can render the A. M. A. is that loyalty which is honour, and that honour which is the actual nucleus of ethics.

According to the dictionary *"Ethics is the science of moral duty"* or the *"science of the ideal human character"* and *medical ethics the rules or principles governing the professional conduct of medical practitioners."*

And, according to the principles and the policies of the International College of Surgeons, without the strictest and most rigid adherence to the letter and to the spirit of ethics, both lay and medical, if any difference may be said to exist—*neither the College itself, nor any of its auxiliaries may function.*

The International College of Surgeons makes of first insistence the fact that none of its Members or Fellows, nor any of the State Sections of the Chapter may assume any attitude other than that of *support and cooperation* on problems coming properly within the province of the American Medical Association. Aims of the International College of Surgeons are restricted to the ways of science and learning. The College is for surgical advancement. It is *not administrative nor judicative, nor legislative, nor combative.* Aims of the American Medical Association, where the United States is concerned, and of similar National representative bodies in other countries are the compass by which the International College of Surgeons in all its chapters is guided. Wholehearted cooperation with such representative governing bodies in every land is a fundamental precept in the College Code which asks only the right to pursue science for science's sake and the good of humanity and of humanity learning.

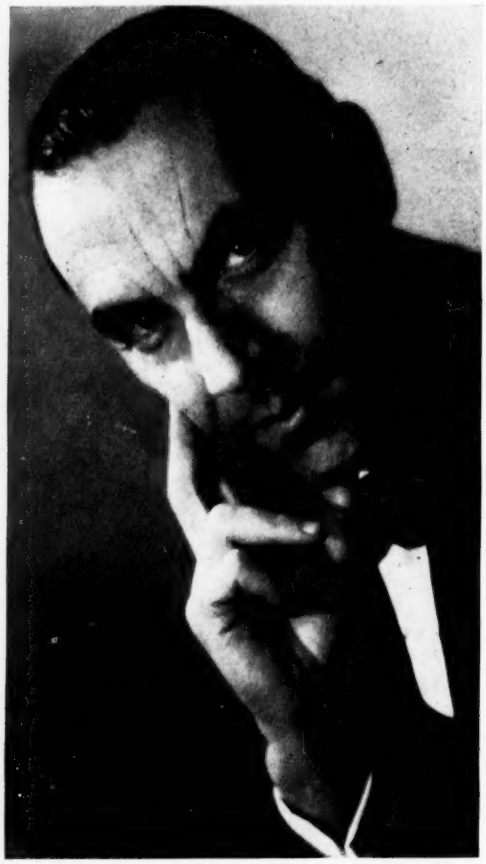
"Loyauté vaut mieux qu'argent" runs an old French proverb. This is as true today as it was 600 years ago when money was less universal. Loyalty is of greater value, in the estimation of those to whom ethics is not a word, but a manner of existence and the *sine qua non* for that daily treadmill which is the way of all flesh, royal or routined, and to which disciples of science make obeisance as deep as that the great Ghengis Khan re-

ceived from the humblest of his subjects. Loyalty benefits from the stabilization emanating from the dignity of constituted authority, a dignity that becomes a vanishing limit without respect. Stabilization as much as standardization is what this rocking, tumultous civilization needs.

There is an old Greek proverb, "He that rides behind another must not think to guide." The American Medical Association is the leader of organized medicine in the United States. The United States Chapter of the International College of Surgeons composed of constituents, all Fellows of the American Medical Association, are glad to ride behind so alert a leadership. There are still so many "truths of science waiting to be caught" that the College, busied in its own work, appreciates the benefits accruing from loyalty to the aegis of the American Medical Association.

Surgical and hospital practice in the last twenty-five years have achieved an outstanding eminence. One of the most effective stimuli in hospital standardization in the United States and of surgical betterment generally was inaugurated by the American College of Surgeons. It is largely due to the endeavors of this body that the United States has triumphed as it has in such approximate perfection of hospital and surgical standardization—a service that is an outstanding and virile demonstration of the exemplary progress made by surgery and by hospitals in their minstrations to humanity.

It is not in a spirit of competition with any surgical organization but rather in one of wholehearted cooperation that the United States Chapter of the International College of Surgeons sets forth upon its way.



PROF. RUDOLPH NISSEN

First Vice-Pres. International College of Surgeons

GREETINGS

WITH the issuing of the first number of the Transactions of the International College of Surgeons, I extend my profound greetings for its success.

Returning from my recent enjoyable visit in the United States and from a study of the situation in Europe I feel that the establishment of our International organization will proceed satisfactorily, because its ideals and aims will be received by serious minded surgeons in every part of the world favorably. With certain changes in the Statutes and after crystalization and rearrangement of the various problems, we all will be proud of our work and achievements for the advancement of surgical progress.

THE INTERNATIONAL COLLEGE OF SURGEONS AT LARGE

SINCE the Charter of the International College of Surgeons was issued to its Founders' Committee (Jentzer, Adler, Jaendin), in Geneva, Switzerland in 1935, the question was frequently asked "Why an International College of Surgeons?" The answer is easily found (a) by appreciating that there is a keen desire among scientific men to exchange thoughts and experiences and benefit from each other's studies and observations; (b) that most of the specialties are represented by International organizations; (c) that there are excellent surgical colleges in many parts of the world but none of an international scope; (d) by reading the raisons d'étre for the College on page 8 and (e) by an appreciation of the profundity of the meaning of Pasteur's aphorism: "La science ná pas de Patrie parce que le savoir est le patrimoine de l'humanité, le flambeau qui eclaire le monde," the spirit of which has been adopted by many international organizations and embraced by the International College group as a keynote for its activities.

Since its inception lively interest has been shown in its activities in many quarters of the world. From far off China Dr. McCracken reported excellent progress before the onset of the present unfortunate conflict. Enthusiastic expressions for its future and ideals were received from President Jirasek and many others.

Professor Jentzer, the European Secretary-Treasurer General has done much constructive work in spite of the unsettled political conditions on the European continent. Similarly, great enthusiasm has been displayed by many European Regents to mention only the excellent work of Professor Stanischeff of the University of Sofia, Bulgaria, Vice-President Rudolf Nissen, erstwhile of the Sauerbruch Clinic, now head of the Surgical Department of the University of Istanbul, Turkey, Professor Papayannou of Cairo and many others.

It was through Professor A. Mario Dogliotti that the distinguished Senator and Surgeon, Prof. R. Paolucci and Prof. Gino Pieri became interested in the College and their names added to its roster.

Expressions of encouragement were received from Profs. Corpas and Bejarano of South America; from Manzanilla of Mexico and from many others in remote quarters of the world.

I was particularly gratified to hear Dr. Leopold Mayer of Brussels, Belgium, Permanent Secretary-Treasurer of the International Surgical Society, personally saying to me "I feel confident that the International College of Surgeons will be an influence for a great deal of good." Prof. Mayer voicing his conviction that the work of the College and that of the International Surgical Society, having different aims added: "Since I became convinced that the ideals of the College are different from those of the International Surgical Society of which I am Permanent Secretary-Treasurer General, it is my keen desire to cooperate with the College."

One cannot escape the conviction that in true and honest expression of both science and art there exists always that universality which is a muted keynote and may be expressed in terms of relativity. Acknowledgment of this universality, and its coincident human interdependability, is perhaps the most accurate answer therefore, that can be phrased to the

question, "What is the need for an International College of Surgeons?"

One must admit the value of an organization which is neither competitive nor secessive. Specialists in any branch of surgery, whether numerically large or small can visualize the possible working advantages of cooperation with already existing Colleges or those to be formed in the future which are ruled by scientific ideals *and encroaching upon no other organization's domaine in any way.*

Many eminent men in surgery have declared—and others daily are adding their subscription to the same tenet that the common language of scientific endeavor and the interchange of experience enrich the surgeon, when in a mutual affiliation, with fraternal obligations, there is a sharing of experience and a mutual participation in advancement.

Again, as long as the ideals, the objects and the principles of the International College of Surgeons are for the development and betterment of surgery and of surgeons, and as such aims at worthy contributions to the cause of science and humanity, its foundation rests on a solid basis. And of the men who have worked to lay that foundation, and toil on to rear upon it a meritorious and justifiable edifice, let it be said in all fairness that they labor patiently realizing that,

"For this and that way swings
The flux of mortal things,
Though moving only to one far-set goal."

—Max Thorek.

AN EDUCATIONAL DREAM BECOMES A REALITY

VINCENT A. LAPENTA, M.D.
INDIANAPOLIS, INDIANA

THAT the problem of the would-be-surgeon is as ancient as man, can be surmised from the Hippocratic Oath. With the growing of moral consciousness, increasing the recognition that the practice of surgery requires special training of a systematic nature under the guidance of masters, the necessity to inculcate this principle induced the father of the healing art to incorporate a solemn pledge in the oath, which he required from all who would be known as his pupils:

> *"I WILL NOT CUT PERSONS LABORING UNDER THE STONE BUT WILL LEAVE THIS TO BE DONE BY MEN WHO ARE PRACTITIONERS OF THIS WORK."*

Renal and Bladder stone was and is yet a widespread disease in the Greek Islands and in the cities surrounding the Black Sea and the Bosphorus.

Our International Vice President, Professor Rudolph Nissen, told me a few weeks ago that one-fourth of all the major surgery in Constantinople is for these afflictions.

We can appreciate that this difficult branch of surgery must have been invaded by so many pretenders, that Father Hippocrates felt compelled to require an oath from all his pupils before honoring them with a certificate from his hands.

This is the first affirmation from such high authority that, regardless of natural gifts, great surgeons do not just happen, and that all skillful, well developed surgeons, freely acknowledge the debt they owe to the masters who supervised their systematic development.

No one at any time or any place has ever expected the Medical Schools to produce master surgeons. The teaching of surgery in the undergraduate curriculum is rather directed to enable physicians to take care of minor surgery and surgical emergencies and to be able to diagnose lesions requiring operations of election.

For this difficult branch of therapeutics, those who have truly qualified in every epoch have been willing to undergo systematic training at the hands of many masters, and usually under the supervision of one personal master, who coordinated the study that the pupil carried on in many places.

In the last 50 years great progress has been made in postgraduate instructions in the various fundamental branches of surgery and in applied surgical technic. For this we can be truly thankful. This work is becoming better coordinated, not only in the various medical schools, offering these courses, but in the special postgraduate institutions making a special effort in this direction.

Probably nowhere better than in the United States, is progress being made in this direction, since the Council on the Medical Education of the American Medical Association, having brought up undergraduate medical instruction to a point of excellence, which commands the respect of the whole world, is now doing wonderful work in coordinating postgraduate instruction in surgery and in various specialties.

The American College of Surgeons has also played and continues to play a great part in this march of progress. It has, in a few years, achieved such a high standardization of hospitals that it has trans-

formed the large private hospitals from the status of hotels for the sick to scientific institutions, and provided through the staff conferences a continuous control and study of the clinical activities of the institution. This phase of work constitutes a milestone in the progress of surgery.

All this is most encouraging and indispensable, and can be confidently expected to assure us of great progress in the years to come. Yet all of this wonderful advancement leaves the devotees of surgery still unsatisfied.

Anyone who has conversed with the great masters of surgery in any part of the world, has found a universal hope expressed that some day in some way the surgical profession would organize itself as a world-wide fraternity, for the purpose of picking out, in time, promising candidates and to guide and nurture their development, their culture, their technical training, so as to produce a generation of masters, certainly varying in excellence, but all individually excellent, to carry on the task for the next generation to follow them. The thought behind this is that no one can remain long enough in the various postgraduate institutions and that the development must go hand in hand with clinical practice under supervision, for which the future masters are to feel the individual responsibility.

The central concept has, therefore, been, that the evolving and developing surgeons, after basic training and periodic postgraduate instruction, would remain in their locality as associate Fellows of a group, devoted to the continuous study of surgery and that these future masters be brought into such intimate union with the matured ones of their district, as to give them an opportunity through clinical conferences and operative clinics to acquire the best knowledge of the day and contribute directly to their own and their fellows advancements.

How the International College of Surgeons hopes to bring to a reality this ancient dream, I hope to show through the Questions and Answers that are to follow.

The exposition of the practical means for the realization of these noble aims we owe to the inspiration received from Dr. William Jepson, who has already made the dream a reality in his corner of the vineyard, these many years, in the state of Iowa. His presentation and practical suggestions made it possible for the Executive Council to perfect a plan, in which all the Regents, Specialty Regents, Fellows and Members are welded into a Teaching Guild, which shall carry on this program for the advancement of surgery in every State or Province of the various nations, represented in the College.

THE PURPOSES AND AIMS OF THE INTERNATIONAL COLLEGE OF SURGEONS EXPLAINED IN QUESTIONS AND ANSWERS, COMPILED UNDER THE AUSPICES OF THE BOARD OF TRUSTEES

Question: What need is there for an International College of Surgeons?

Answer: The Founders after consultation with many eminent surgeons throughout the world felt and feel convinced that a great need exists for a *new type of organization*, binding all progressive surgeons in a world wide, cooperative effort to advance the standards of practice of surgery, to provide for a thorough training of new generations of surgeons and to stimulate research by the awarding of prizes in every branch of surgical science and art.

Question: In what respect does the International College differ from existing National and International surgical Societies and Colleges?

Answer: Existing surgical Societies have performed and will continue to perform an indispensable function, however, they are not postgraduate or clinical bodies, but offer rather a variety of distinctions, some of them quite exclusive, all very necessary, but none that provide constant courses of postgraduate instruction, preparing the members for higher efficiency and providing for proper qualifying advancements to stimulate this constant effort towards higher surgical perfection on the part of its members.

Question: How does the International College of Surgeons hope to accomplish this desirable end?

Answer: By providing in each State or Province of a Nation a selected Board of Regents and Specialty Regents, whose duty it is to prepare a program of systematic study, in which Associate Members, Members and Fellows and Regents participate, both, as teachers and discussants, in addition to providing for practical operative demonstrations, thus offering an opportunity and an incentive for men to prepare themselves for increasingly higher quality of work. This Study Group in each state or province constitutes a teaching Guild and becomes a living force for surgical progress, not only among the Members and Fellows of the College but among the profession as a whole, since reputable physicians in good standing with their medical society and in the United States, who are Fellows of the A.M.A., are invited to attend these Study Seminars without charge.

Question: How is the teaching work of the College coordinated?

Answer: There will be National Regents in every branch of surgery. These National Regents are in effect the Professors of a particular branch who assume the duties of Clinical Professors, and arrange for the program of study. The State Regents in turn, in applying these programs, arrange for the operations to be performed at each stated meeting by Members of the group and provide for the round table discussion that is to follow.

Question: Does this work of the College make postgraduate work, offered by various institutions, unnecessary?

Answer: It does not. On the contrary, one of the important results we expect from the postgraduate Study Guilds is the creation of a desire on the part of associate Members to take frequent systematic postgraduate courses, offered by leading Universities and postgraduate Schools. The Regents are empowered to

recommend Fellows who have taken these systematic postgraduate courses for more rapid promotion in the College, and those who have taken courses for an entire scholastic year, in subjects approved by the National Regent of the surgical branch they are preparing themselves for, may even be excused from the requirement of presenting a thesis. Thus the College will definitely strengthen the educational programs of leading Universities and Postgraduate Schools.

Question: How is the College composed?

Answer: The College is composed of National Regents, Senior Regents, one in each State, State Regents and State Specialty Regents.

Question: How is the membership composed?

Answer: The Membership is composed of associate Members, Charter Members, Charter Fellows and elected Members and Fellows. Associate Members, Physicians whose practice is largely devoted to surgery can be elected associate Members, and by continuing their studies with the postgraduate Study Guild, be, in due time and after examination, promoted to Members and later by other examination and thesis, be elected Fellows.

Charter Members and Charter Fellows are those who have been elected from among surgeons of recognized ability and who have been in the practice of surgery not less than 15 years.

Masters. This is the highest degree that is conferred only for outstanding and exceptional achievement in surgery and may be also conferred on eminent surgeons who do not belong to the College.

Question: Who may become Charter Members and Charter Fellows?

Answer: Surgeons of state-wide and nation-wide reputation who have been in the practice of surgery not less than 15 years and who have made notable contributions to the literature may be invited by the Regents of the State or Province in which they reside or may be invited on motion of a member of the Executive Council, or may make their own application directly either to the Senior Regent of their State or to the Secretary of the U. S. Chapter or the National Chapter or in whatever country they may reside.

Surgeons of state-wide reputation, whose contributions to literature are not very extensive, may be elected Charter Members and are required to present a thesis on a surgical subject of their choice.

Those who have made notable contributions to literature and who have attained greater eminence, are elected Charter Fellows. Both Charter Members and Charter Fellows may be required to operate in the presence of a designated Committee of Regents, but in the case of men of outstanding reputation, they may be exempt from this part of the qualifying examination, but must present a thesis. The Council of Examiners has no authority to exempt any one from the thesis requirement.

Question: How are elected Members and Fellows selected?

Answer: Exactly in the same manner as the Charter Members and Fellows, in addition to which in the United States they may be required to pass the examination of one of the American Boards, approved by the Council on Medical Education of the American Medical Association, in addition to which they will then fulfill their requirements by operating in the presence of the Regents Committee and presenting an acceptable thesis.

Question: How are associate Members selected?

Answer: Physicians whose practice is mainly s u r g i c a l, but whose surgical career and training is not yet complete, may, by applying to the State Regent of their State and presenting proof of surgical fitness in the type of surgery that they are practicing as evidenced by hospital records, by taking an oral and written examination, as the Regents may

prescribe, be elected associate Members. Once elected associate Members, they must attend all courses of instructions given by the Regents of the State as a Teaching Guild, in addition to undertaking from time to time such postgraduate work as may be required to entitle them to promotion.

The College will assist these men in arranging for courses in any part of the world, in addition to extending to them fraternal assistance and guidance of Regents of the College, wherever they may go. When courses are completed these men are then encouraged to take the examination of one of the American Boards above referred to, and if successful there, and if they meet the other requirements of the College, will be elected Members.

Question: Are associate Members of equal status with the other Members and Fellows of the College?

Answer: They have equal enjoyment of all the advantages of the College throughout the world and are entitled to attend all meetings, but they may not use any designation after their name, until they are elected Members or Fellows, only Charter Members, Charter Fellows and elected Members and Fellows may use the designation of the College degrees: *"M. I. C. S. G E N E V A," "F. I. C. S. G E N E V A."*

Question: Are Teaching Guilds organized in every State of the U. S.?

Answer: They will be organized in all States and it is suggested that in States of small population, 2 or more States unite, to form a Bi or Tri-State Teaching Guild.

Question: What privileges does the card of the College carry?

Answer: All Members and Fellows of whatever rank and classification, will be cordially received in the operating rooms of any Member or Fellow of the College and particularly of those that are Regents. Those of Regent rank will not only be glad but will feel obliged to receive and provide every facility to visiting Members or Fellows of the College and to assist them in planning postgraduate courses in their locality at the most advantageous conditions possible.

Every Regent is bound by his pledge to use all of the influence at his command for the benefit of Members and Fellows of the College with the sole object of increasing the usefulness and influence of the College and promoting the progress of surgery.

Question: Does the relationship between Members and Fellows of the College vary in any degree from the usual one of other learned Societies?

Answer: It certainly and fundamentally does. Once a surgeon has passed all the tests, received the approval of the competent Board of Censors and gained election by the Executive Council, he is considered a living unit of the College throughout the world and henceforth the College has a distinct interest in furthering his progress, in extending him every possible protection, and every Fellow of the College will feel equally bound to consider the accepted Member as a brother and on whose reputation no assaults will be tolerated without unequivocal evidence of misconduct. Thus the College is both, a Teaching Guild and a Fraternity, consecrated to the noble ideal of maintaining the torch of surgical learning and to prepare and strengthen the hands of every successive generation of surgeons that are to maintain it flameing for the benefit of humanity.

REPORT OF THE PROCEEDINGS OF THE FIRST ASSEMBLY OF THE UNITED STATES CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS, AT NEW YORK

DR. CHARLES H. ARNOLD

Secretary to the Scientific Assembly

THE First Assembly of the United States Chapter of the International Chapter of College Surgeons (Geneva) was held at the Waldorf-Astoria Hotel, New York City, on June 1st and 2nd, 1937.

The success of this Assembly was due to the untiring efforts exerted by every member of the various committes under the leadership and direction of Dr. A. A. Berg, General Chairman. The Surgeons constituting these committees made sacrifices to give the time which was necessary to properly organize and carry out the details of the Inaugural Assembly.

The personnel of the committees was as follows

Program Committee: Dr. A. A. Berg, Chairman, Dr. P. Brooke Bland, Dr. Karl Meyer, Dr. Stuart N. Michaux, Dr. Henry M. Scheer.

SUB-COMMITTEES ON ARRANGEMENTS

Scientific Program: Dr. Duncan MacPherson, Chairman; *Banquet Committee:* Dr. T. J. Tobin, Chairman; *Entertainment Committee:* Dr. Henry Scheer; *Speakers Committee:* Dr. Frank Yoemans, Chairman; *Ladies Enterainment Committee:* Mesdames Whitman and Root.

Advisory Committee on Arrangements: Dr. Edw. Frankel, Jr., Dr. J. A. Haiman, Dr. M. J. Horan, Dr. Morris Levine, Dr. F. H. Russell, Dr. H. B. Schoenberg, Dr. Clarence H. Smith, Dr. Arthur Stoloff. Dr. David W. Tobey, Dr. Armitage Whitman and Dr. George A. Wyeth.

The morning of Tuesday June 1st was devoted to registration, at which time there were 256 surgeons registered from 25 states and 4 foreign countries. Promptly at 2:00 P. M., his Excellency, Herbert H. Lehman, Governor of the state of New York honored us with his presence, having come to New York solely for the Assembly. His address of welcome is to be found on other pages.

The scientific program which followed was opened by an address by Dr. David Marine, Montefiore Hospital, New York City on "Exophthalmos in Graves Disease" (with remarks on its prevention). Discussion of this address was opened by Dr. B. S. Oppenheimer, of Columbia University, New York. Following this, Dr. André Crotti, president of the United States Chapter of the International College of Surgeons, of Grant Hospital and Crotti Clinic of Columbus, Ohio, spoke on the "Etiology of Endemic Goiter" and the research work he had carried out. The discussion of this address was opened by Dr. T. W. Hinton of New York, Dr. B. B. Raginsky of Montreal, Canada, who is internationally known for his research in Avertin Anesthesia, spoke on the "Present Status of Analeptics in Anesthesia." The discussion of his address was opened by Dr. E. A. Rovenstein of New York. The next and last address on the program for the afternoon of June 1st was most ably presented by Dr. P. Brooke Bland of Jefferson Medical College Hospital, Philadelphia, Pennsylvania, wherein he thorougly discussed the subject of "Syphilis Complicating Pregnancy". The discussion of this address was opened by Dr. Harbeck

Halsted of Columbia University, College of Physicians and Surgeons, Vanderbilt Clinic, New York City.

Following the close of these discussions announcement was made that a dinner dance had been provided for the Fellows and their ladies, to begin at 7:30 P. M. The Assembly then was adjourned until two o'clock the following day.

The forenoon of June 2nd was devoted to visits to the hospitals and clinics given by the various Fellows of the International College of Surgeons and at 2:00 P.M. the scientific assembly reconvened and was opened by a paper on the "Fundamentals of Pterygium Surgery" by Dr. T. J. Dimitri of Tulane University of New Orleans, La. The discussion of this paper was opened by Dr. Oscar B. Nugent, Professor of Opthalamalogy, Chicago Eye, Ear, Nose and Throat Hospital, Chicago, Illinois.

Following this, "Problems of the Surgery of the Prostate" was most ably presented by Dr. Hugh H. Young of Johns Hopkins University, Johns Hopkins Hospital; James Buchanan Brady Urological Institute, Baltimore, Maryland. The discussion of this paper was opened by Dr. O. S. Lowsley, Director of the Department of Urology of James Buchanan Brady Foundation, New York Hospital.

The next paper on the program was that of Dr. F. S. Dolley, Cedars of Labanon Hospital of Los Angles, California, who spoke on "Tumors of the Chest with Description of Surgical Approach". The discussion on his paper was opened by Dr. Adrian Lambert, Columbia University College of Physicians and Surgeons, New York City.

The next and last address on the program of the New York Assembly of the United States Chapter of the International College of Surgeons was presented by Dr. A. A. Berg, Mount Sinai Hospital, New York City, who spoke on "Surgery of Chronic Non-Specific Ulcerative Colitis". The discussion of his paper was opened by Dr. Jerome Lynch, New York Polyclinic Medical School and Hospital, New York City.

A radio address by Dr. Frank C. Yoemans of New York City was given, setting forth the aims and ideals of the College. This will be found in subsequent pages.

At the conclusion of the Scientific Program, announcement was made that the Assembly Banquet, to be followed by the Conferring of Degrees, was to be held at 7:30 P.M. in the ballroom of the Waldorf-Astoria Hotel. Dr. A. A. Berg of New York City presided as toastmaster. Speakers at the evening meeting following the banquet, which was attended by the Fellows and their ladies, were: Dr. S. S. Goldwater, Commissioner of Hospitals of New York City, and Dr. Andre Crotti, President of the United States Chapter of the International College of Surgeons.

Dr. Crotti stated in his Presidential address that the purpose of the College is to function as a College per se, in other words it is to be educational.

The Executive Council on the following day adopted a most comprehensive plan which was presented and outlined to them by Dr. William Jepson of Sioux City, Iowa. This plan calls for the establishment of Clinical Guilds, the details of which are to be found on subsequent pages.

President Crotti further announced the personell of the Board of Trustees to be as follows: Dr. Vincent A. Lapenta of Indianapolis, Indiana, Chairman; Dr. P. Brooke Bland of Philadelphia; Dr. Oscar B. Nugent of Chicago; Dr. A. A. Berg of New York City; Dr. Max Thorek of Chicago. To these have been added since, Dr. Julien C. Pate of Tampa, Florida; and Dr. Fred Douglass of Toledo, Ohio.

Dr. Vincent A. Lapenta, President of the Board of Trustees, announced tht he had received cablegrams and communications from National Regents of twenty-seven different foreign countries and read

these congratulatory messages to the Assembly.

The Director-General of the International College of Surgeons then conferred the Degree of Fellowship upon Dr. André Crotti, President of the United States Chapter who in turn conferred the degree and title of Fellow of the International College of Surgeons (Geneva) on the assembled candidates, and an honorary Fellowship was conferred on Dr. Hugh H. Young of Baltimore, whose written acceptance was read.

Following this ceremony, Dr. Lapenta, President of the Board of Trustees announced the following appointments had been made: Dr. A. A. Berg, New York City, National Regent in Gastric Surgery; Dr. George Van Ingen Brown, Milwaukee, Wisconsin, National Regent in Plastic Surgery; Dr. P. Brooke Bland, Philadelphia, Pennsylvania, National Regent in Gynecology; Dr. Oscar B. Nugent, Chicago, Illinois, National Regent in Ophthalmalogy; Dr. Arthur Steindler, University of Iowa, Iowa City, National Regent in Orthopedic Surgery; Dr. E. E. Fincher, Jr., Atlanta, Georgia, National Regent in Neuro-Surgery; Dr. Chevalier Jackson, Philadelphia, National Regent in Bronchoscopic Surgery; and Dr. Andre Crotti, Columbus, Ohio, National Regent in Goiter Surgery. All of these appointments were to be for the term of one year.

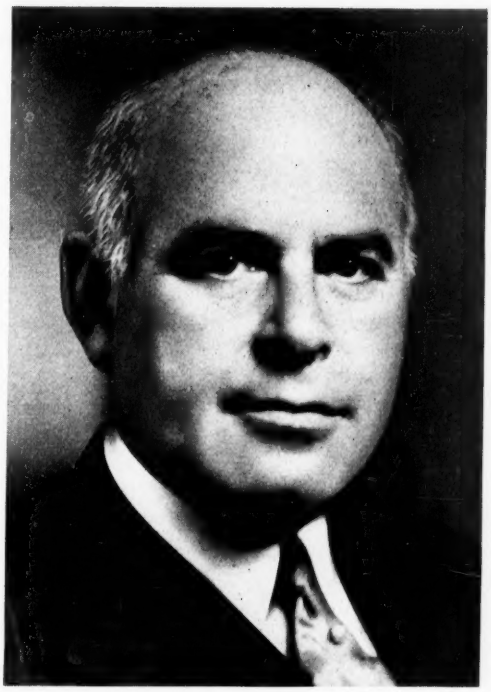
A group of western songs were sung by Dr. W. Andrew Bunten, of Cheyene, Wyoming, State Regent for Wyoming, who appeared in cowboy costume and charmed the entire group with his interpretations of these songs depicting the life of the Old West.

The last and closing number of the program was a most entertaining and dramatic review of his own life and intimate contacts by Uncle Bob Sherwood.

OPENING ADDRESS OF HIS EXCELLENCY, HERBERT H. LEHMAN, GOVERNOR OF THE STATE OF NEW YORK

MR. President, Mr. Chairman, Friends of the International College of Surgeons:

I deem it a privilege and a pleasure to be here today to welcome this first assembly of the International College at its meeting in the city of New York. I particularly am happy to welcome so many of the members of the College who came from states outside of our own.



HERBERT H. LEHMAN
Governor of the State of New York

I have no set speech. Unfortunately, I have been so busy in the past weeks that I have not had an opportunity of preparing one. As you may know, when the Legislature adjourned three weeks ago, it left 850 bills which have to be acted on by June 6. I still have 300 bills on which I see night and day that fixed deadline set by the Constitution of the State, with the knowledge that I have to act on the bills by midnight of June 6. And yet in spite of the very great pressure of official work, I was so much interested in the work of this new organization that I deem it a real privilege to come down here from Albany especially to greet you.

It seems to me that this organization is of particular importance both in a national and international way in many ways. In the first place, it provides a means of aiding the standards of surgery throughout the world, as they concern various surgical specialties. In the second place, it provides the means of coordinating and developing uniform methods of surgery and medicine. In the third place, it provides the means of developing sound relationships to the communities which they serve, and to the governmental agencies under which they may operate.

I know from my own personal knowledge particularly of the benefit that comes to government and to our citizens generally through a close relationship between medical and surgical organizations, and government. We have, during the past several years, had a fine cooperation between our State the recognized and responsible medical organizations of the state.

It has been of great value, that cooperation, in fixing standards, in drafting and scrutinizing legislation, and in the maintenance of sound medical and governmental practices.

It has been my privilege and my

pleasure to cooperate closely with those organizations that exist within our State today, and I am confident that the assistance and the advice given by those organizations to the Legislature, to the Governor and to the departments of state have made, not only for better technical and professional procedure, but have also aided the cause of better government.

Through that cooperation, for which I am deeply grateful, we have avoided much unsound legislation, and we have undoubtedly improved the procedure in our great institutions, in the administration of our workmen's compensation laws, and in public health.

It may interest you to hear very briefly some of the activities carried on in the State in connection with public health and medicine.

We have, as you know, at the head of our health activities in this state a public health council of nine persons. That Council sets the policies and regulations that have the force and effect of law, such as quarantine, sewage disposal, water supply. It also has much to do with drafting and passing on the legislation affecting State aid to the very many communities of the State.

Then comes the Department of Health, the administrative branch of government that carries out our health statutes and eventuates the rules and regulations of the Health Council.

The State does not assume the responsibility for any health activity in full, save in the case of caring for the mentally ill. By a law passed more than 70 years ago, the State is responsible for taking care of all its insane, all those who are judged to be mentally ill. We have twenty-three hospitals, and I think it may interest particularly those who come from outside of the State of New York to know that we have in those hospitals today more than 70,000 men, women and children receiving care from the State of New York.

I believe that although possibly there has been less actual progress in mental hygiene than in any other branch of medicine or surgery, yet great gain has been made during the past fifteen years.

We carry on research activity in our great psychiatric institution here in New York and in Syracuse, and one of the very interesting experiments, if we may call it that, which is being carried on now, is the treatment of our insane, those suffering from dementia praecox through the insulin treatment, and I am glad to say that we show very encouraging results in at least six of the state institutions.

We have in Albany a great State laboratory. It carries on research. We are increasing the scope of that laboratory in connection with the manufacture and distribution of sera to combat pneumonia. At the last session of the Legislature, there was appropriated $400,000 to permit us to increase the manufacture of sera from the two types which we have been using for some years, to the six or seven types that have been developed, and which offer very substantial hope of success, I am advised by professional men.

We are carrying on an agressive campaign of syphilis control, and fortunately people have passed the stage where they hesitate to pursue the work, and they are, through their educational facilities, through the care that is being given in this campaign by local health officers, undoubtedly making great gains. We are carrying on all our work largely through the aid of the private physician, and the public health service.

I think of particular interest to the surgeons is the research work that is being done in our laboratories, in the examinations, pathological examinations, that are being made, and in the development of antitoxins, to combat those diseases with which, of course, you, better than anyone else, are familiar. We have made particular efforts to develop an

adequate supply of antitoxins against tetanus, gas gangrene, and anthrax.

We have a great institution up at West Haverstraw to care for crippled children. Unfortunately, we only take care of 350 or 400 of those youngsters. They are the happiest and the best satisfied and the most optimistic children I know, bar none, and we have the opportunity now of carrying on orthopedic work that I am told by professional men is second to none. But, unfortunately, the number of children that we can take care of in that institution is small, as compared to those that require aid to help them in their struggle to regain the free use of their physical faculties.

We are carrying on a campaign, of course, in this State against tuberculosis as we have for many years. In the last few years — the last three years to be exact—we have created three new great institutions for the care of the tubercular, where we are not only giving the best of physical care but we are also carrying on many operations in the care of those afflicted with tuberculosis. These institutions are up-to-date, beautiful and perfect, so far as human knowledge dictates, in their physical appointments.

We have developed some interest in this State in cancer, although, of course, we have not made great gains along those lines. We have in Buffalo a cancer research institution with thirty beds. An appropriation of $600,000 was made by the Legislature this year which will permit an increase from thirty to one hundred beds in that institution.

I have found very great difference of opinion among experts as to the extent and character of state participation in the treatment of cancer. Some, as you know, believe that the state should engage directly in a larger and more comprehensive campaign against cancer. Others think that the state's participation should generally take the form of subsidies of existing private facilities, and of providing means of treatment which are not now available to private hospitals.

At the last session of the Legislature a commission was created of doctors and state officials to investigate and study that situation in detail, and comprehensively, with the idea of reporting to the Legislature at its next session with recommendations as to the best possible way in which the state could help the private practicing physician and surgeon in combating the ravages of that dread disease.

To me, there is a degree of great satisfaction in the fact that in spite of the depression and the urgent need of economy —and that need has been very great and ever present — we of the State of New York have not stinted in our appropriations for the health activities of the State.

The appropriations that have been made in the last five years have not only been maintained at the former level, but have actually been increased every year. They are greater today than they were five or ten years ago. The state has recognized its duty to help the private practitioner and surgeon in carrying on the health activities to which every citizen of the state in ill-health or subject to ill-health is entitled.

The state, in medicine and surgery, as well as in almost every other social activity, can do only a relatively small part of the necessary and essential work. The greater part of the social activities of any government, of any unit of government, must be carried on through private initiative. State activity, no matter how well administered, can never successfully take the place of the private practitioner, or the privately endowed institution. . (Applause)

Government can never be substituted for the interests of the countless thousands of men and women, both professional and lay, who have given themselves without stint and without thought of self, to the social and technical services which

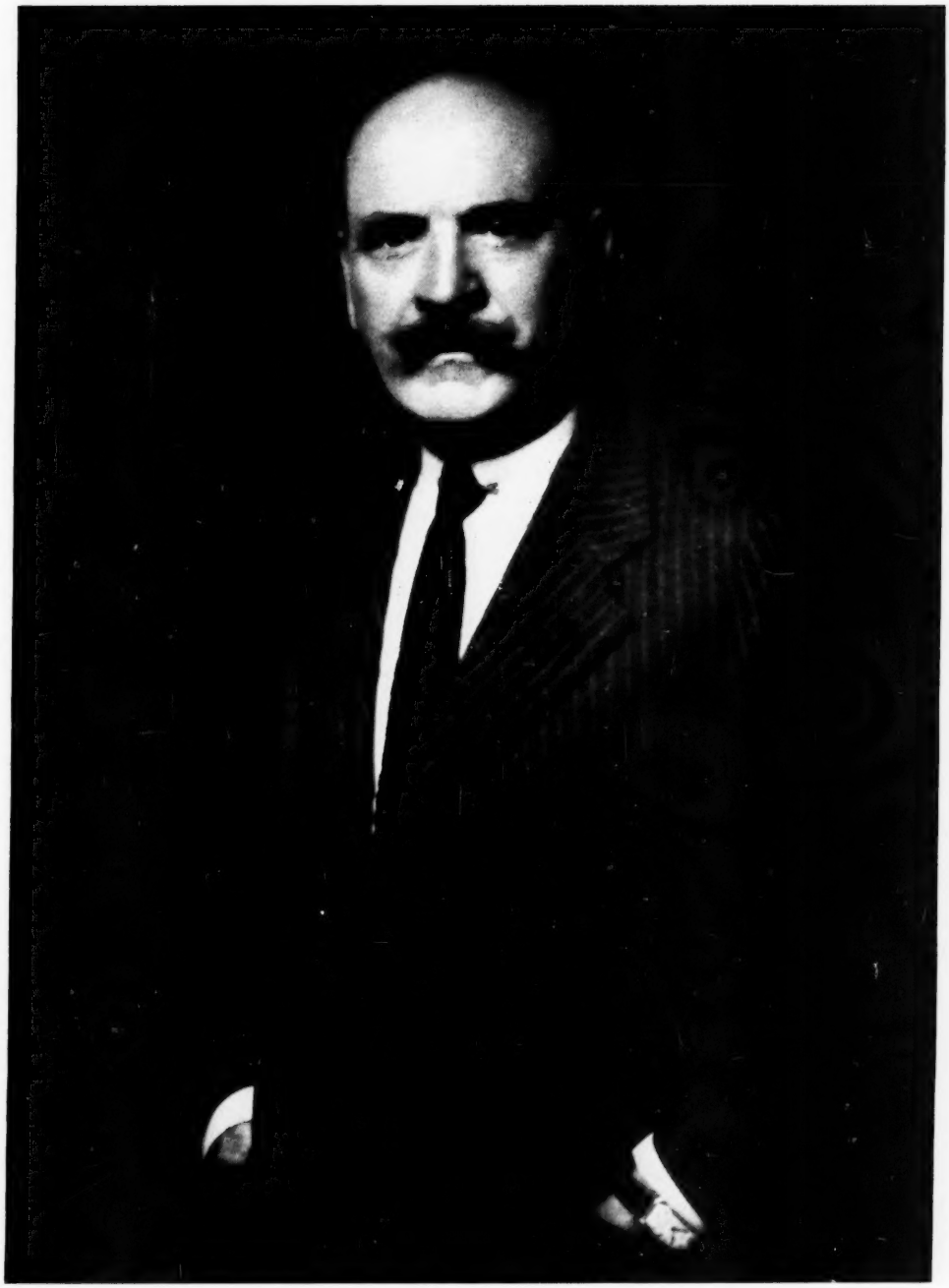
people have come to expect and have come to demand.

Finally, government, operating wholly with public moneys, can never carry on the work of research, or experimentation, or of developing new and improved methods of treatment or prevention. That must be done through private initiative, subject not to the taxpayer but subject to those people, those public-spirited men and women citizens of our community, who are willing to see their money bring in no return, if necessary, for a generation or more, but eager to serve humanity for a long pull, and over a broad picture. (Applause)

That research, that experimentation, can, I am convinced — and I speak now from an experience, both as one who has for many years before entering public life been interested in social problems, and one who for nine years has now been in public life—that work can best be done through private initiative frequently inspired by organizations such as this, which is meeting here today.

And so, I feel, my friends, very sincerely, that your work is of deep importance to our immediate communities, and to humanity.

I congratulate you on the creation of this International organization of Surgeons. I welcome you heartily to our State of New York, and I wish you well in the work of the future. (Applause).



ANDRÉ CROTTI, M.D., F.A.C.S., LL.D., F.I.C.S.

President of the United States Chapter of the International College of Surgeons

ADDRESS OF PRESIDENT, UNITED STATES CHAPTER INTERNATIONAL COLLEGE OF SURGEONS

AS President of the United States Chapter of the International College of Surgeons, the duty and honor to enlighten the audience as to the aims and ideals of the International College of Surgeons has become my privilege. I am afraid that I may not be equal to the task. I know too well that other voices, better qualified than mine, would do greater justice to this presentation. Therefore, I beg your indulgence.

The idea of banding together in a given association a group of individuals, scattered throughout the world but following the same line of endeavor, is not a new one. That has been done before, not only in art, in the various sciences, but also in medicine and in surgery.

What is new rather is the idea of *International College*. *COLLEGE* means school, work, study. *College* means teaching. It means imparting knowledge to its adherents. The idea of a "loosely-jointed" organization, which meets only once in a while and loses sight of its members in the interim, is foreign to the idea of College, because *College* means sustained contact with its various members not only at yearly intervals, but throughout the whole year. This may be accomplished in many ways: by the publication of an official printed Journal; by sectional scientific meetings of specialties; by organized postgraduate courses; by surgical clinics conducted at specified times and intervals at which the leaders will teach some of the finer points of surgery.

That is what the word, *COLLEGE,* means, and that is what the International College of Surgeons proposes to do throughout the nations of the world.

The International College of Surgeons is making every effort to secure as members the outstanding surgical figures belonging to the various nations of the world. They will be the ones to guide the destinies of the College. They will be known as *National Regents.* Their first duty will be to organize their own country into a chapter of the College, much in the same way as we have done in America, bearing in mind, however, that the fundamental requirements as laid down by the International College of Surgeons must be adhered to.

Also, the duty of these regents is to insure an impartial but searching selection of other regents, such as *State* or *Territorial Regents,* who will form sub-committees not only for executive purposes, but also to suggest the choice of and to investigate candidates for Fellowship, as well as for membership.

Finally, the duty of these regents is to guide the College toward higher ideals, and toward further progress. This may be accomplished not only by the example of high skill and high moral character of the leaders, but also by setting down rigid requirements for surgical training and fitness for surgery, which when complied with, will be a guarantee of competence and also of protection to the public.

How is this to be obtained? By demanding of the younger generation of candidates an adequate surgical training; by compelling them to submit to rigid examinations held by a highly competent Board, and by letting an especially appointed surgical committee assist at, and pass judgment upon, operations performed by the candidate; and also by a close investigation of the candidate's

moral and ethical standards in his own community.

If these requirements are adhered to, the selection of the younger candidates can but promise high grade surgeons in the future. This, in itself, will do more to raise the standards of surgery throughout the world, than anything else. In terms of time, this will lead to the formation of a selected surgical aristocracy which will contrast sharply with the promiscuous and inadequate surgery not so infrequently seen.

I wonder how many of you gave even a thought to the actual function of our Fellowship and Membership card.

Ours is a world wide organization based on the pledged service of national and state regents, whose duty it is to teach and guide the rising generation of surgeons. In insisting upon rigid qualifications and in establishing prize awards for research, the International College of Surgeons becomes a powerful force for surgical progress and for surgical teaching advancement.

Our membership card is, therefore, a *surgical passport*, opening the door to a vast teaching faculty eager to guide the studious member in the selection of the proper course to follow in the post-graduate institutions of the world. Regents are therefore expected to extend every privilege of their clinics to anyone of our visiting members, thus facilitating their preparations for international fellowship.

To the Fellow of recognized authority, our Fellowship card is a passport of brotherly reception and assistance wherever a Fellow of the College or a Regent of the College may be contacted.

We fully realize that the aims of the College are almost staggering in their magnitude, and that a great many obstacles will be met in the fulfillment of the task.

The United States Chapter of the International College of Surgeons, in this great task, is most fortunate. Here, thanks to the work of the American Medical Association, of the American College of Surgeons and other institutions, medical education and post-graduate instruction has reached a state of eminence and efficiency that is gaining the admiration of the medical world.

Through the direction of the National Regents, State Regents and the Charter Fellows, all surgeons of established reputation and high character, we have provided for a nucleus upon which to rear a greater structure as an expansion, and not in competition with the great work and aims of the American Board of the American Medical Association and of the American College of Surgeons. It is gratifying to point out that the majority of our regents are Fellows and many are officers and past officers of these meritorious institutions.

Under the auspices of the Council of Medical Education of the American Medical Association, a number of examining boards have been organized, enforcing very high standards of qualifications; the last to come into being is the American Board of Surgery.

It must be clearly stated, however, that the mere presentation of the certificate of these examining boards will not entitle the candidate to automatically become a member of the U. S. Chapter of the International College of Surgeons. Our requirements must be also complied with. Also, other qualifications such as high moral and ethical standards, surgical ability recognized and vouched for by a special examining committee are required.

Examining Boards. The Regents are the examiners of the College. The National Regents and State Regents are charged with the duty of investigating the ethical conduct of the candidate and to act as censors.

To provide uniform standards of examination, to act as the connecting link between the Regents and the Executive

Council, a Board of Examiners has been created.

This Examining Board will appoint in each state a secondary examining board, whose duty it will be to consider new candidates for membership, to pass upon their moral, ethical and surgical standards, and report to the Central Examining Board.

This Central Examining Board will also serve as an appellate court for candidates who may feel that they have not received a square deal from the Regents of their State, and may then, with the consent of the Executive Council permit these candidates to be examined by the Board of Regents of other states.

Board of Trustees. The College is not operated for the private profit of any person. The members of the Executive Council of the U. S. Chapter and many of the Charter Fellows have donated to the College hundreds of dollars in cash, and have served without compensation. Most of them have refused reimbursement of their expenses.

All the funds, after clerical and office expenses are paid, are dedicated to the organization of the educational program, to the establishment of research prizes, and a small portion of the money collected as admission fees will go to the Central General offices to facilitate and further the international program, especially to facilitate the publication of the Transactions of the International College of Surgeons.

The Board of Trustees must approve all expenditures, and will submit annually an audited financial report to the Assembly.

The International College of Surgeons feels that it has also another mission. By bringing together the leaders in surgery of the other nations of the world, it hopes to soften and perhaps to break down the barriers of antagonism and prejudices which our tormented era has erected among the nations. Indeed, the sky of nations is laden with dark clouds, the block of old traditions disintegrates, everything changes, or is about to change. Nations orient themselves toward new principles. This entry of Nations into a new and unforseen mental world cannot take place without a period of transition, difficult and uncertain. Between the ruins of lost illusions and the application of new principles, there are bound to arise many new and pressing problems which will have to be solved.

In this task the International College of Surgeons feels that it can be of valuable service. It feels that it will not only be a powerful instrument in elevating the standards of surgery, but feels also that it can be a medium through which will be brought about better understanding among the surgeons of the various nations of the world. And since these surgeons represent largely an intellectual elite, they should have great influence in their respective countries.

Now, Fellows and Members of the International College of Surgeons, the future of the College rests in your hands. Your trust in its aims, your devotion, and your active cooperation will assure its success.

MAKING SURGERY SAFER

FRANK C. YEOMANS, M.D.

Professor of Proctology, New York Polyclinic Medical School and Hospital; Associate Surgeon, New York Hospital; Honorary Consulting Surgeon, New York City Cancer Institute

Radio Broadcast over a National hook-up of Columbia Broadcasting System, (WABC 860) 485 Madison Avenue, at 4:15 P. M., June 1, 1937, in connection with the First Assembly of the U. S. Chapter of the International College of Surgeons, at the Waldorf-Astoria Hotel, New York City, June 1 and 2, 1937

IN ancient days surgery was chiefly employed in cases of great urgency and necessity, too frequently when the patient was beyond all human aid. The recognition of disease in its early stages was limited, methods of relief were crude and painful, and the results of treatment were frequently unsatisfactory.

The essential needs were anesthetics and means of prevention of infection. The first fundamental departure from ancient practice dates from 1873, when Louis Pasteur of France showed that micro-organisms produced fermentation and, a few years later, that anthrax in cattle was due to infection by a special bacillus or germ.

These epoch-making discoveries were the key that opened the laboratory door for scientists to discover the specific causes of all infections.

Sir Joseph Lister of England quickly recognized the importance and great practical value of Pasteur's work. He at once introduced antiseptic solutions in surgery and, in his operating room, the air was permeated with an antiseptic spray. As a result the percentage of cases infected after operation fell abruptly. Further study showed that, as all infections were due to various germs, the simplest and most direct way to prevent infection was to see to it that everything coming in contact with a patient during operation was germ free. In other words, asepsis (germ free) supplanted antisepsis, so that today, so far as is possible, the patient's skin is rendered germ free before operation, only sterlized dressings are used, all instruments are boiled, the hands of the surgeon, his assistants and nurses are thoroughly cleansed and encased in sterilized rubber gloves and all are capped, masked and g o w n e d in sterilized garments. Careful observation of these essential measures safeguards the patient from infection from without and makes *surgery safer.*

Anesthesia: Today we cannot realize the torture and suffering endured by a patient before the discovery of modern anesthetics. Opiates, spirits and strong-armed assistants combined to restrain the patient while the surgeon operated quickly, often with skill, but seldom with deliberation sufficient to enable him to use his best judgment.

Dr. Morton opened a new vista and signal advance for safety in surgery when, in 1846, at the Massachusetts General Hospital, he administered ether to a patient who was painlessly and successfully operated upon by Dr. Joseph Warren. This initial public demonstration was followed by the discovery and general use of other anesthetics, notably chloroform, by Sir J. Y. Simpson of Scotland. Later nitrous oxide, ethylene and other gases were also used.

Anesthesia, without loss of consciousness, by the local or regional injection of anesthetizing solutions, has so developed that many operations can now be performed without any general disturbance of the patient. Although search for the

ideal anesthetic is still progressing the methods available make present-day surgery safer than ever before.

Research to make surgery safer naturally leads to the use of the lower animals—mice, rats, guinea pigs, rabbits, etc.—in laboratory experiments to ascertain the effects of various drugs and chemicals and operative procedures before applying them to man. Practically every new advance in surgery has as its basis previous trial in the laboratory.

If that small minority of persons who object to the use of experimental animals under controlled conditions in the laboratory, without pain or suffering, could realize the benefits to humanity, I feel confident that they would favor this procedure for making surgery safer. Without this humane, scientific method progress in surgery would be retarded.

In recognized hospitals the safety of the patient is safeguarded by a personal individual study. Examinations are made to determine the functioning of the heart and kidneys, X-ray and other laboratory examinations to determine the patient's resistance and the type of anesthetic best suited to his case, all in the interest of operative safety.

The Surgeon: Yet, after every precaution known to science has been taken, the keynote is the operating surgeon. Only this year many airplanes of the latest approved type have gone to destruction laden with many precious lives. The boards of inquiry in some instances placed the blame upon the pilot, a sad failure of the human factor. In striking contrast stand the thrilling flights of Lindbergh, Admiral Byrd, Wilie Post, Amelia Earhart, Dick Merrill and others, all under most adverse conditions.

Surgeons may be divided into two general classes—operators and real surgeans. The operator may possess manual dexterity and mechanical skill but lacks the prime qualities of mind and heart that distinguish the true surgeon. Whenever he operates upon a patient, whether in a free clinic or for a fee, the surgeon assumes a moral responsibility which he alone must bear. This involves surgical judgment gained by experience as to the nature of the operation to be performed, an evaluation of the ability of the patient to undergo the operation safely as determined by the physical examination, laboratory reports and other data, skill and judgment during the operative procedure itself and finally, the probable benefit to be expected.

It thus becomes obvious that many years of hard, conscientious work and study are required to make a surgeon, and that only men of high ideals and strong moral character should undertake the responsibility.

Organization in Surgery: In the passage of time the medical profession has gradually become organized in the different countries of the world. The two leading organizations in America are the American Medical Association and the American College of Surgeons. The Association, through its Council on Medical Education and Hospitals, has surveyed 77 recognized medical schools in the United States and 10 in Canada. 705 hospitals have been approved for interneships and 410 hospitals offer approved residencies in the specialties.

The Association is now also engaged in the highly commendable but arduous task of supervising boards appointed in the various specialties to certify as to the qualifications and fitness of doctors who desire to become specialists. This is a decided step in advance for protecting the public against spurious specialists—specialists in name only, without the necessary qualifications and experience.

The American College of Surgeons since its organization in 1913 has done a marvelous work in raising the standards of surgery and elevating surgical ideals.

(1) Its minimum standard for approved hospitals includes the provision that (a) membership on the staff be re-

stricted to legally licensed physicians and surgeons who received their medical degrees from an accepted medical school, (b) competent in their respective fields and (c) worthy in character and professional ethics, and (2) "That diagnostic and therapeutic facilities under competent supervision be available for the study, diagnosis and treatment of patients,these to include at least (a) a clinical laboratory providing chemical, bacteriological, serological and pathological services, and (b) an X-ray department providing radiographic and fluoroscopic services."

Outstanding advantages of hospital standardization are: first, better care for the patient; second, increase of scientific knowledge for the members of the staff; third; the hospital functions more efficiently and, fourth, the public has greater pride and confidence in the hospital it knows to be so organized as to give adequate care and efficient service to the sick and injured.

Several other countries besides our own have established high standards for hospitals and surgeons. Unfortunately such organization does not exist throughout the world.

To supply this need the International College of Surgeons was founded in Geneva and now the first assembly of the United States Chapter, under whose auspices I have the honor of speaking, is in session at the Waldorf-Astoria Hotel in New York. Among the worthy objects stated in the charter of the International College of Surgeons are: (1) To gather together eminent surgeons of each nation, free state and dominion in the world into one great organization with the thought in view that the personal exchange of views of the leaders in surgery will do much to advance the science of surgery and also promote a better understanding between those who in every country are working for the good of humanity; (2) To elevate the standards of surgery; (3) To combat the practice of surgery by unqualified persons by having its Committee on Publication ethically advise the public of authentic possibilities of surgical relief and to exert its influence to prevent unnecessary and promiscuous surgical operations; (4) To co-operate with all colleges of surgery now in existence; (5) Through its committees the International College will select the surgically constructive advances developed in any one country and endeavor to see to it that such advances are made known in other countries; (6) To encourage research in surgery and its correlated branches, particularly cancer, by offering annual awards and distinctions; (7) To foster the perpetuation and growth of the museum of surgery—the recent gift of Mrs. William Randolph Hearst to the International College of Surgeons; (8) To recognize merit by awarding the degree of Member, Fellow or Master of the college

The National Regents of each country are responsible for the organization of the chapter of the college in their own country. A candidate for admission to membership or fellowship in the college must have graduated from a recognized medical school, served an interneship in an approved hospital; he must have contributed original articles on surgery which have appeared in approved medical journals; he must be connected with the surgical service in an approved hospital and have been in practice for at least five years. Before approval the Regents will personally observe the work of candidates while they are operating.

The college thus takes every precaution to assure high moral and scientific standards of its personnel. So long as the controlling spirit remains humanitarian the surgeon will retain the high esteem in which he is now held.

At this time it is to be particularly noted and stressed that this new college is unique in that it is international. It does not compete with any surgical organization of any country. It is not national but international in character.

In our own country the American Medical Association rates hospitals for approval for the training of internes, and residencies for training in the specialties. It also supervises the boards appointed for the certification of doctors in the various specialties.

The American College of Surgeons includes in its membership the great majority of the active surgeons of both the United States and Canada and has set high standards for hospital approval. The efficient activities of these two great national organizations have so improved the service of the hospitals and raised the standards of surgery that today surgery in America commands the attention and respect of the civilized world.

Unfortunately many distant countries and peoples are not so blessed. It thus becomes a worthy, altruistic ideal and duty of this college, an international organization, by collaboration and co-operation with existing surgical societies, medical associations and colleges to organize the surgeons of each country, free state and dominion into a national chapter of the International College, to the end that efficient hospitals and competent surgeons of high moral and ethical character may unite in making surgery safer for the peoples of all lands.

The college has been established under favorable auspices. Presidents of national organizations and surgical societies, officers of universities, chief surgeons of approved hospitals and professors of surgery in all nations have given freely advice, co-operation and material aid.

Practical evidence of the progress of the college in its international aims and beneficent objectives is the fact that already chapters are being organized in sixty-two countries.

There are no more fitting words with which to close my remarks than the ideal of the college as expressed in the aphorism of the immortal Pasteur:

"Science belongs to no one country, because knowledge is the inheritance of humanity, the torch which illuminates the world."

THE CLINICAL GROUP OR GUILD PLAN

ONE of the aims and purposes of the United States Chapter of the International College of Surgeons is to disseminate knowledge, especially to the younger surgeons and to assist them toward perfecting their technique.

It came to the attention of the Executive Council of the United States Chapter of the International College of Surgeons that Dr. William Jepson had been active in founding the Iowa Clinical Society, a unique and outstanding educational organization of Surgeons of that state of many years standing.

Dr. Jepson was invited to appear before the Council at its meeting in New York City on June 3, 1937, and to acquaint it with the ideals, objects and the results of the activities of that organization with a view of determining the feasibility of promoting similar activities in other states or localities.

Dr. Jepson, accompanied by Dr. E. A. Jenkinson, Secretary of the Iowa Clinical Surgical Society, appeared before the Council at the appointed time and presented a brief resumé of the motives underlying the organization of said Society organized some eleven years previously and the apparent success of its activities in keeping its membership abreast of the current advancements in the field of surgery and surgical technic. This was accomplished through the study of the operative procedures as exemplified by members in their operative work in clinics conducted by them in rotation at stated times and places, it being obviously an abridged postgraduate course of instruction conducted by its membership for its membership with a view of furthering their efficiency.

The Council was so favorably impressed with this plan of study by surgeons as a means of advancing their efficiency that Dr. Jepson was invited to formulate the plan of activies in writing so that the Council might have it before them for more careful study.

In August, 1937, the same was received, accompanied by a letter, as well as one from Dr. Jenkinson, Secretary of the Society and who is now its President since its organization, briefly detailing the activities of the Society since its origin and the apparent benefits to its members. The plan was unanimously endorsed by the Executive Council of the United States Chapter of the International College of Surgeons.

The salient points submitted by Dr. Jepson and Dr. Jenkinson follow:

It was recognized that it was a dominant desire of all surgeons imbued with the thought of rendering the most efficient services of which they were capable to their patients, to keep fully abreast of any advancement in their profession and that they would endure much hardship and sacrifice much comfort to accomplish this.

It is further recognized that while highly desirable that surgeons should spend two, three or four weeks, if not more, each year in visiting clinics and taking post graduate work in the larger medical centers of our country, many surgeons with a very active practice would find this time when added to that which must be expended in attending local, state, and national and special meetings, a burden on their time which they could not always readily sustain. As a matter of fact with but few exceptions could they arrange to be away one or two days at a time.

It was considered that the practice of surgery implies possession of dual qualifications, first: that of possessing the fullest possible theoretical knowledge regarding any surgical problem; second, the surgeon must consider sufficient technical

training to execute the operative procedures indicated for relief. His hands and fingers must be trained to unerringly and expeditiously execute the will of his brain. It was believed that surgical knowledge and skill could not be acquired through reading alone or hearing about it, but that this should be supplemented by witnessing the work of others and individual training.

It was thought that much benefit might result to surgeons through association with one another in groups of a size compatible with the fullest facility to witness the procedures of the operator and the subsequent discussion of the work. The surgeons taking their turns in presenting their work in operative clinics and the rest of the members for the time being acting as critics—"the thought," said Dr. Jepson, "was that we were not satisfied in just hearing how successful a surgeon but we wished to see him execute his surgical procedures. If superior to ours we stood in a position to learn, if defective we were in a position to seek its correction in the course of the discussion of the work, it being a rule that each member must express his views of the work done."

It was believed that surgeons motivated by a true scientific spirit, would after a full and free acquaintance with one another develop a spirit of comradeship which would court constructive criticism of their work, without which true advancement can not well be made and the danger of meandering off into unsafe channels be avoided. The experience of the Iowa Surgical Association covering the period of its existence has proved this thought to be true; at least no one has shown any outward sign of being piqued by any adverse criticism. Certainly no one has resigned on this account.

It was thought that the Iowa Surgical Association would lead to diffusion of the surgical knowledge (technic) as possessed by its membership, throughout the whole group, and that the Association and its activities would prove a practical means of keeping its membership fairly well abreast of surgical advancement.

It is believed that these hopes and aspirations were quite well founded as evidenced by the results of the Association covering a period of eleven years and it is thought that similar results might be expected among similar groups if existing in other states or localities.

The activity of the Society was not undertaken with any thought of supplanting any of the many sources available for garnering knowledge but rather to supplement these by such as was current within its membership.

DUTIES OF MEMBERS OF THE GUILD

It shall be the duty of the Membership of the College in any state, to organize themselves into C l i n i c a l Groups or Guilds of not less than twenty or more than fifty in number, except upon special grants by the National Chapter; said association shall conduct clinics semi-annually, or oftener if desired, by rotation in hospitals of the cities where its members may reside.

All members of the city where such clinics shall be conducted shall participate by presenting at least two cases, one of which must be an operative one, unless for special and valid reasons a member may be excused.

Clinics shall be conducted on the days assigned from the hours of 8:00 A. M. until 12:00 noon. After luncheon the members are obliged to meet and discuss such problems as may have presented themselves in the course of the work of the morning. Each case must be taken up for consideration. Constructive criticism is to be encouraged by the members and tolerated by the clinicians of the day, as the objects of the clinics are those of affording material for the discussion of the best means of caring for any surgical condition to the end that the recipients of

the Art and Science of Surgery may have the fullest benefit therefrom.

It shall appoint from among its members, three Members who shall function as censors, who with the three Fellows (or more) appointed by the National Board of Governors and the State Regent, who shall act as Chairman, shall constitute the State Board of Governors of the Guilds.

ASSOCIATE MEMBERS

1. Associate Members must be thirty years of age or over. They shall be requested to pass an examination, or submit certification by national examining boards whose high standards are accepted by the International College of Surgeons.

2. They must have had interneship in a recognized hospital.

3. They must possess a medical diploma giving them the right to practice surgery in the country where the application is made.

4. They must pay special attention to the practice of surgery, or to some surgical specialty as accepted by the International College of Surgeons.

5. They must be connected with a hospital of not less than twenty-five beds.

6. Their moral and ethical fitness as well as their surgical capacity must be vouched for by at least three members of the International College of Surgeons, or Fellows of the International College of Surgeons.

7. They must have been in independent surgical practice for at least five years.

8. They shall have to submit to examination before being accepted in the College.

9. They shall be a member of the A.M.A.

10. After due election and compliance with his financial obligations to the College he shall receive a diploma and membership card and be entitled to receive all Transactions.

Duties and Rights:

(a) The duties of the Associate Members shall be to attend the scientific meetings organized by the Fellows and Regents of the clinical groups or Guilds of the district in which the Associate Members live.

(b) To attend the general meetings.

(c) To carry out the duties entrusted to them from time to time by the officers of the district to which they belong.

(d) They shall have no power to vote.

Fees and Dues:

An Associate Member shall pay $50.00 when making application, $25.00 of which shall remain in the Guild treasury for examination fees, etc. He shall pay annual dues of $10.00 before graduation to Rank of Member or Fellow. He shall then pay an additional fee of $75.00 and his dues shall be raised to $25.00 per annum.

Certification by any of the following National qualifying boards, namely: Surgery, Ophthalmology, Otolaryngology, Obstetrics and Gynecology, Orthopedic Surgery, Genito-Urinary Surgery or any National or Foreign Board which shall require an equal or higher standard of qualification for certification, will be accepted as evidence of such qualification.

It shall be the duty of Members and Fellows of the Guilds to impart all possible knowledge to Associate Members and to assist them in obtaining facilities for post graduate study in the Clinics of Fellows of the College throughout the world, thereby assisting them to qualify later for the rank of Member or Fellow.

The State Board of Regents of the Guilds shall be the ruling and controling body of the Guilds.

Any of the Guild's members eligible to Fellowship by reason of sufficient and satisfactory services in said Guilds shall be recommended to the National Board of Regents for such Fellowship upon two-

thirds affirmative vote, by ballot, after said application has been passed upon by its Board of Regents.

Each Guild may adopt such by-laws governing the conduct of its meetings as are consistent with those of the American Chapter and with those of the International College of Surgeons (Geneva).

The Guild does not assume the responsibility of qualifying men for the practice of surgery or any of its specialties but seeks only to integrate those who have qualified before one of the various specialty boards and after they have established themselves in the practice of their specialty to such a degree that they are capable of participating in the activities of the Clinical Association with which they seek affiliation in order that they may benefit from one another's knowledge and experience.

RESEARCH ON THE

ETIOLOGY OF ENDEMIC GOITER

DR. ANDRÉ CROTTI
COLUMBUS, OHIO

I HAVE always felt that the *geological theory,* namely, the one that sought to explain the production of goiter through the influence of certain geological strata upon the drinking water, such as limestone, metallic deposits, etc., failed miserably to explain goiter occurrence in various parts of the world. Indeed, as endemic goiter is so widely distributed among so many and so scattered parts of the world, if anyone of these geological strata were responsible for the production of goiter, it would be found always wherever endemic goiter is present. This is not the case. Many endemic foci are known to exist where no limestone, no metallic deposits, etc., are present. The geological theory has taken into consideration only local conditions. It has failed to explain endemic goiter as a world problem.

So far as the *Iodine Deficiency Theory* is concerned, it has so many shortcomings, that in my judgment, it cannot be regarded as a true *primary* cause of goiter.

Even if we should concede that iodine prevents the formation of goiter (and this is by no means scientifically demonstrated), to state that goiter is due to iodine deficiency is simply "jumping at a conclusion." It is a *post hoc ergo propter hoc* argument. It is the same line of reasoning as if one would say that, because syphilitics are cured with mercury and iodides, they are lacking in mercury and iodides. The same is true of malaria; before we knew the actual cause of malaria it might have been argued that the patient was deficient in quinine because the patient was relieved of his malaria by this drug.

It is interesting to note that an analogous discussion, according to Galli-Vallerio, had been taking place on the subject of the disease in cattle in South Africa; the *lamsiekte.* The administration of phosphates to the cattle protected them against the disease, hence, the conclusion drawn that they were lacking in phosphates. Sir Arnold Theiler, however, has shown that when sufficient quantities of phosphates are given to cattle, they no longer feel the need of devouring the bones of dead animals, bones which contain the *Parabotulinus bovis* the actual cause of the lamsiekte.

It is remarkable to see how the medical profession has overlooked the late Gaylord's experiments. These findings have been confirmed by McCarrison. Gaylord took a tank of trout which he kept as controls; then he took another tank of trout in which he induced goiter: they all became affected with goiter. He took a third tank of trout and sought to induce the development of goiter in the same way as in those of the second tank, but added iodine. No goiter developed. Had he stopped there, his findings would have been interpreted as a strong proof of the iodine deficiency theory. Fortunately, he went a step further and took a fourth tank of trout in which he endeavored to develop goiter as in the second group of trout, but instead of using iodine he added bichloride of mercury and no goiter developed. He took a fifth tank of trout and in these he sought to develop goiter as he had in those of the second tank, but instead of using iodine or

bichloride of mercury, he used arsenical preparations and no goiter developed.

Now, if one has the right to claim that in the trout in the third tank iodine was deficient, then in order to remain logical, one will have to conclude that those of the fourth tank have a deficiency of bichloride of mercury and in those of the fifth tank a deficiency of arsenic. It will at once be seen that this line of reasoning leads only to fallacious conclusions.

Many other arguments and facts could be brought forward to substantiate the inaccuracy of the iodine deficiency theory, but this is not the place.

The only conclusion that one can draw is that the *deficiency of iodine theory as the primary cause of goiter* is far from being a demonstrated fact. If iodine deficiency is not the *primary* cause, then it can be but a *secondary* one. In other words, something else intervenes to interfere with the normal metabolism of iodine. This very admission implies that the primary cause of goiter is still to be found. It is all very well to lay the blame on heredity, or unhygienic conditions, on impurities of the water supply, on intestinal flora, etc. The real question is: What is there in the water supply, in the intestinal flora, which acts as the specific agent for the production of goiter and where does this specific agent come from?

I have always felt, and still do feel, that only a *contagium vivum* can explain satisfactorily the cause of goiter.

I undertook a systematic research into this problem in 1910, and the following is a synopsis of this work:

1. Isolation of a fungus in fresh and cultured goiter material.
2. Research for the presence of this fungus in fixed goiter material.
3. Isolation of the same fungus in the water supply of endemic foci.
4. Reproduction of goiter in dogs with the isolated fungus.
5. Reclamation of the fungus from the dogs experimented upon.
6. Isolation of the same fungus in cabbage.
7. Reproduction of goiter in rabbits with the cabbage fungus.
8. Reclamation of the fungus from the inoculated rabbits.
9. Demonstration that the human goiter fungus and the cabbage fungus are the same.
10. Experimentation showing that iodine does not protect rabbits against goiter produced with the fungus.*

*Since a detailed report of this research work would be too extensive only a summary will be given. For full details see: Thyroid, Parathyroids and Thymus, by the author. (Lea and Febiger, Phila., 1938).

1. *Isolation of the Fungus from Fresh Goiter Material.*

Fresh goiter material removed in the operating room was examined first with dark field illumination, followed by cultures of fresh goiter material. (Fig. 1).

The examination revealed the presence of a tiny body, round or oval in shape, motile, golden in appearance; therefore,

Fig. 1

it was called the *golden body.* I have, however, seen some other spore-like bodies having a bluish-white hue. These have the same characteristics of motion and behavior as the golden body. These color characteristics do not seem to have any special significance. It was thought at first that they represented some sexual differentiation, but this does not seem to be the case. The size of these golden bodies is anywhere from visibility to 1¼ microns at a magnification of 1000x. These golden bodies are spores. They reproduce by:

1. A budding process;
2. By asexual process;
3. By sexual conjugation;
4. By true sexual fertilization.

(Figs. 2-5).

An attempt was made to establish the life cycle of this fungus. The original spore goes through various stages which differ one from another, and which can be seen intermingled in the miscropic field. This pleomorphic aspect must have been the reason why the presence of such various elements was not given more attention; in fact, it was entirely overlooked. The only one who reported observing some such elements was Merck; however he observed one life cycle element of this fungus, and naturally could not give to it its proper significance.

2. A spirillum is often observed in dark field examinations of fresh goiter material. These spirilla possess spiral turns which are regular, frequently winding at almost right angles throughout the entire length of the organism, the number of turns varying with the size of the spirillum. Both ends of this spirillum terminate in finely pointed ends that become almost indiscernible. No undulating membrane or flagella are seen. (Fig. 6).

This spirillum resembles in every respect the spirochete described by Noguchi in the Journal of the American Medical Association, May, 1926. It does not seem to be a living organism *per se* but most likely represents a discarded flagellum or sterigma. This spirillum does not seem to have any etiological bearings upon the production of goiter.

Classification of the Fungus. In attempting to classify the fungus just described, one meets with great difficulties.

I feel that it has all the characteristics of a *fungus.*

In perusing the works on fungi, one soon finds that no finished standardization can be relied upon in separating the various characters and factors making up the life cycle of each order. The various authors ordinarily summarize in such terms, that one is left with the impression that fungi are capable of any or all changes, at anytime, and this under any and all environmental conditions. No rule seems to hold fast.

I feel that this goiter fungus belongs to the order of *hyphomycetes* or *fungi imperfecti* in the *genus Alternaria.* Many reasons for such a classification could be cited and some against it. That is, however, the nearest approach to classification that I have been able to come.

Under the term, *genus Alternaria,* is meant a vegetative species, a known inhabitant of soil and water, a digestor of cellulose, having a resting stage in winter and sporulating in the spring. When transported to an environment of a higher temperature, it mutates to a permanent biological species; it is a digestor of colloid, having a resting stage in winter, and becoming active in the spring and summer.

In the case of many parasitic fungi, certain members of a given species have become so modified and specialized in their parasitism, that they can infect only a given species of host-plant, or at most, a few closely allied species.

Such are termed, *biological forms,* on account of their specialty in this direction being of purely physiological nature. No morphological differences are presented by biological forms belonging to the same species. The morphological

species called *Erysiphe graminis* is parasitic on barley, oats, wheat and many wild grasses. Culture experiments have proven, however, that this particular form, parasitic upon anyone of the plants enumerated above, cannot infect any of the other plants.

Hugo de Vries, Dutch botanist, (1848) the author of De Vries' theory writes:

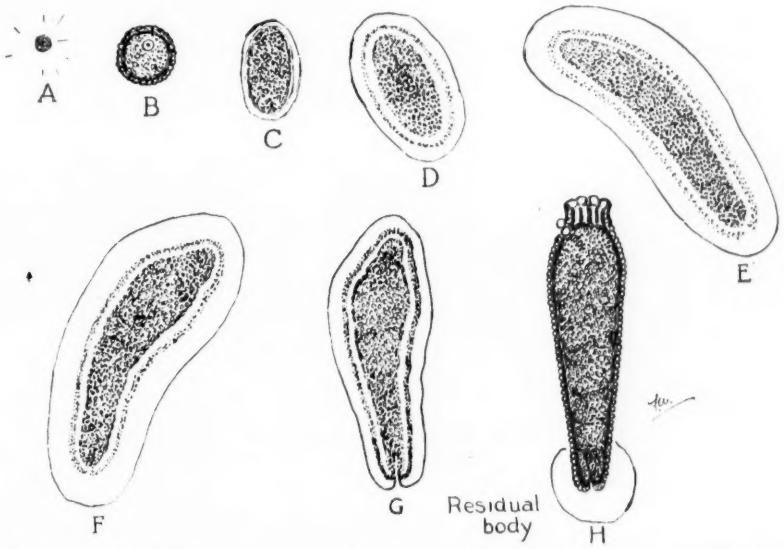


Fig. 2.—*A* to *H* represent the various stages in the asexual life-cycle. Schematic. *A, B, C.* Have been explained in the previous pictures. *D.* Note the appearance of the granular membrane thus forming the two clear spaces: an inner and an outer one. *E, F.* The ascus is much larger; the outer clear space has grown considerably; the inner one has grown smaller. *G.* The anterior portion of the ascus has grown wider, the posterior has grown thinner and longer. Note the micropyle at posterior end. *H.* The ascus has reached its matured stage. The granular membrane and the inner clear space have shrunken to form the knobbed membrane of the ascus. The outer clear space is being discarded as a "residual body." The anterior portion of the ascus assumes a more or less rostrum affect. On the antero-lateral end of the ascus a sporoduct is seen in which spores in transit are seen. Micropyle is very plain. Note the Grecian-vase form in *H.*

"The theory of heredity, according to the variability of the germ-plasm, is such that it may give rise, not to fluctuating variations, but to marked and permanent mutations, and the latter, if advantageous to the parasite, are preserved by natural selection. Such permanent variations are called *mutations.*"

These characteristics seem to fit well our goiter fungus.

Because of its morphological properties, it differs from all other known fungi.

In the *Saccharomyces spec. Plimmer* short hyphae and also budding forms are observed, much as seen with goiter fungus. A fine, lacy, mycelial covering also appears in the Saccharomyces, which may convey at times the impression that we are dealing with a sporangium similar to the one observed in the goiter fungus. However, no signs of sexual and true fertilization are observed, as described in the goiter fungus. The dark-field of the Saccharomyces spec. Plimmer procured from the American Type Culture Collection, Chicago, Illinois, reveals also the presence of minute, motile elements resembling those of the goiter fungus. But the various stages of the life cycle, as seen in goiter, are wanting.

In the *Cryptococcus macroglossiae*

Castellani, only round or oval spores are present; no asci, no zygotes. In cultures procured from the American Type Culture Collection, this cryptococcus has the appearance of a typical yeast, i.e. large, globular cells, 10 to 16 microns in diameter, reproducing by budding. In cultures, which are white, beside these globular elements, rudimentary mycelial tubes may be found, presenting lateral or terminal elements (conidia); asci are absent. This fungus does not ferment sugar and there is no formation of a pellicle.

budding takes place with a single bud at a time. Occasionally, short hyphal elements are observed. No asci, no zygotes, no sexual fertilization. The spores, however, resemble much the permanent mutations of the goiter fungus.

The goiter fungus is an *entity* by itself.

It would appear that the fungus spores after being liberated, instead of entering a cell of the intestinal epithelium, make their way to a more distant part of the body, namely, the thyroid. The same behavior is known to exist in other parasites. For instance, the common earth-

Fig. 3

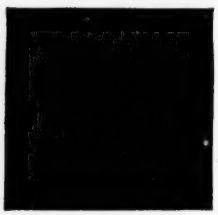


Fig. 4

Fig. 5

Fig. 3.—Ascus. Fresh goiter material. Darkfield × 1000. Microphotograph. Note: Corresponds to *E* and *F* of Fig. 2.

Fig. 4.—Mature ascus. × 1000. Note Grecian-vase form. Residual body does not show in photograph. Note: Corresponds to *H* of Fig. 2.

Fig. 5.—Fresh goiter material. Ascus. Note a golden body through the sporoduct.

The goiter fungus does not form a pellicle either, but remains at the base of the tube as a whitish, gray and lacy deposit. 0.5% dextrose added to Ringer's solution preserved the goiter fungus, while Sabouraud's medium (containing lactose) appears to produce distortion or deviation from the usual forms.

The cryptococcus macroglossiae has no large, broad mycelia; when present, they are very sparse and thin. In goiter fungus, mycelia and hyphae are always present in large numbers and size.

In the *Monilia (cryptococcus) Castellani* (procured from the American Type Culture Collection, Chicago, Illinois)

worm is frequently infected with gregarines, (various forms of Monocysts) the sporozoites of which, after their escape in the gut from the oöcyst ingested by the worm, wander to the testes, the sperm mother cells of which become infected. (Protozoology, Wenyon, Vol. II, page 1140).

Results of the Study of Fixed and Stained Tissues. If these elements, such as described above, are present in fresh goiter material, they ought to be seen also in the fixed and stained tissue. Microphotographs of fixed and stained goiter material were shown to prove the

presence of the same goiter fungus elements.

2. *Goitrigenous Water Supply.* Water was taken from various endemic foci in Ohio and West Virginia. The technic of collecting the samples of water is the same as used in typhoid fever.

3. Microphotographs also show the presence of the various elements which constitute the life cycle of the goiter fungus found in fresh as well as in the fixed goiter material.

4. *Animal Experimentation.* A series of dogs was inoculated or fed with cultures of the goiter fungus. Slides showed not only the percentage of incidence of a goiter produced experimentally in dogs, but also disclosed that the same elements constituting the life cycle of the goiter fungus found in the human goiter were re-claimed.

5. In one series of 7 puppies experimented upon, each received 18 intramuscular injections of the fungus culture at intervals of one week. 42.8% developed a definite goiter; the fungus was reclaimed in 71.4% of these cases.

6. *Investigation of Cabbage.* Chesney, Clawson and Webster, in 1938, showed that cabbage as the main food caused goiter in rabbits within 15 to 30 days and considerable goiter after months as a consequence of the same diet. This work was confirmed by Marine, Baumann and Cirpe, in 1929, and by Marine, Baumann and Webster, in 1930.

If my contention that the goiter fungus, which I have isolated from the human goiter, and which I have found in the water supply of endemic foci, with which I have reproduced goiter in dogs, had anything to do with the production of goiter, then I should be able to demonstrate that this very fungus exists in cabbage also.

Investigation of the raw as well as of the steamed cabbage revealed also the presence of all the various elements which constitute the life cycle of the fungus found in human goiter.

Microphotographs and sketches illustrate the points.

There is no question that the fungal elements found in cabbage are identical with those found in human goiter material.

7. *Experiments on Rabbit.* The next step to be undertaken was to see if with

A *B*

Fig. 6.—Spirals. Darkfield. × 4000. *(B)* the same as *(A)* but greatly magnified. Comparison with T. pallidum proved there is no resemblance, and of the two forms, the goiter spiral resisted extremes of temperature, desiccation, and changes from aerobic to anaerobic methods of cultivation better than did the former. Seen in fresh goiter material the spiral appears as a fragile thread of pale bluish-white, having four or five turns in the spiral. No granules are seen in the fresh form, but later on in the culture, granulated spirals are frequently seen.

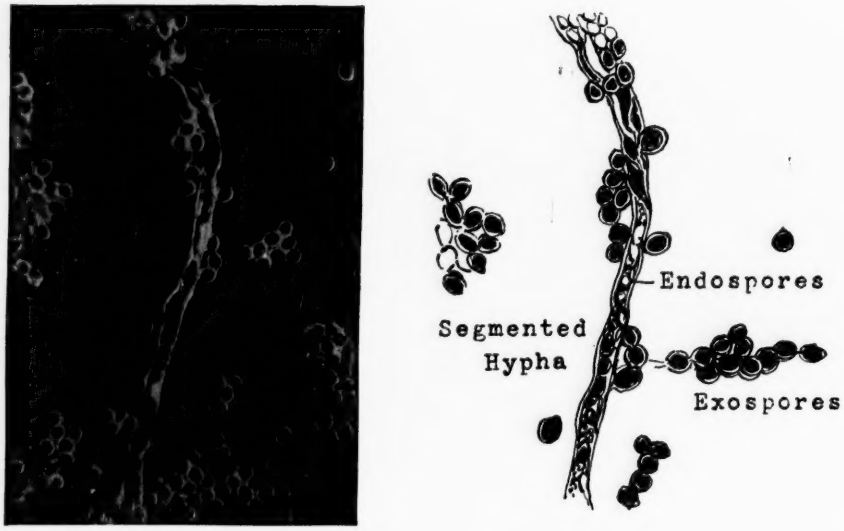


Fig. 7.—Goiter culture. Mutation. Permanent species. × 1000. Mr. P., operated on February 25, 1930. B.M. + 25. Pure culture. Compare these spores with the ones obtained from cabbage cultures. Figs. 8.

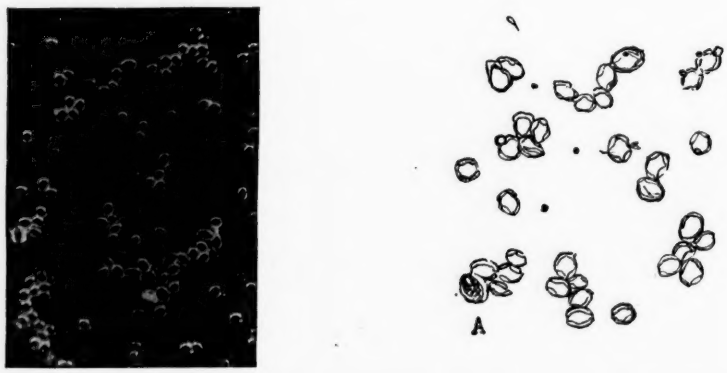


Fig. 8.—Steamed cabbage culture. Incubated at 37.5° C. Phototaxic organisms. Third generation. × 1000. The organisms illustrated are zoöspores. These zoöspores are capable of becoming zoösporangia or more directly "sporangia" and not change visibly until almost ready for the final distribution of zoöspores. It may be incorrect to assume that some of these zoöspores do not reach maturity as zoösporangia, but become involved in a network of finely granular protoplasm and duvet hiding the thwarted sporebodies. Certain is the fact that members of these zoöspores do become sporangia which have as a chief characteristic the five pointed platform called "sorus" which supports a definite number of spores. These characteristics are described by writers on the Synchytria. *(A)* Direct sporangia first show the minute sterigmata. All direct sporangia will not reveal segmentation or spore formation. It is only in connection with the sorus-type that definite numbers of spores or segmentation is shown. Our studies give us a true picture of both types of sporangia, both as discrete and connected associations. Compare these spores with the ones seen in goiter material. Figs. 7.

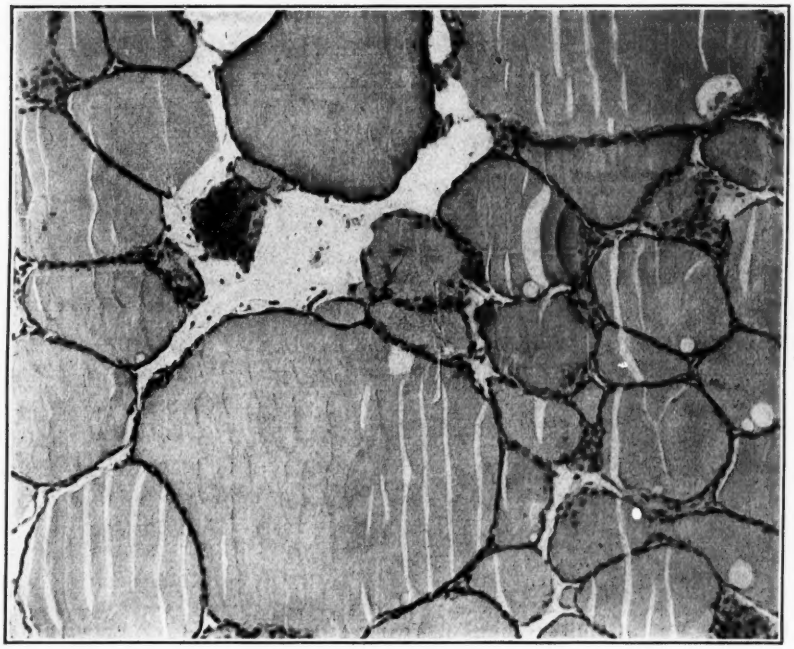


Fig. 9.—Inoculated.

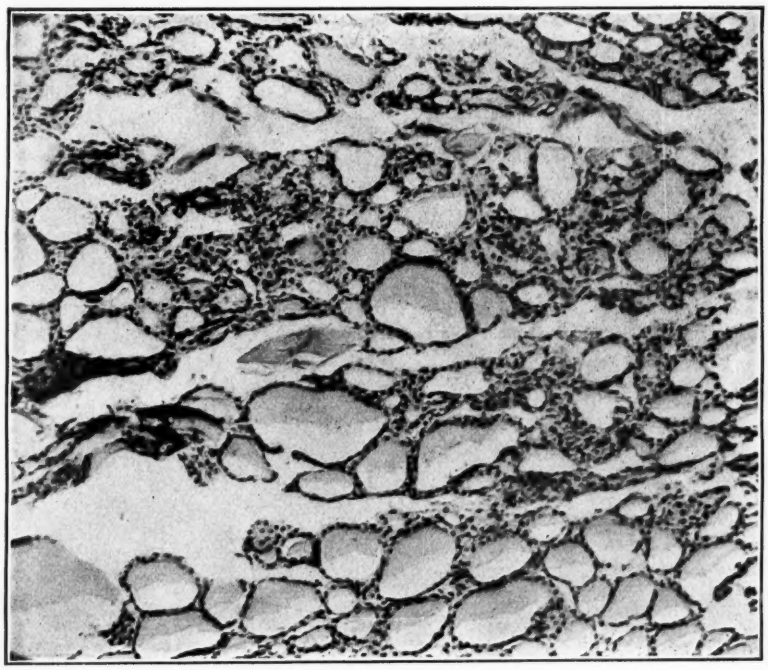


Fig. 10.—Control.

Figs. 9 and 10.—Series 6.—Cabbage fungus. No Lugol's. Results obtained in one hundred days after 17 intramuscular injections. × 150.

the cabbage fungus obtained from cultures, I could secure the same results as obtained by Chesney, et. al. in feeding cabbage to rabbits and this within the same length of time, i.e. two to three weeks. All precautions against outside contamination were taken. The cages were spacious, well lighted, and aerated with a retiring hutch in each cage; new wooden floors kept clean and covered with dry, clean straw which was changed every day. The food consisted of clean alfalfa, oats and occasionally green leaves or lettuce. Plenty of boiled water for drinking purposes was supplied.

Controls and experimental rabbits were treated alike as far as hygienic conditions, food and drinking water were concerned.

Intramuscular inoculations of 69 rabbits with cultures of the cabbage fungus and the study of 56 controls, eight to ten weeks old, gave an incidence of diffuse goiter in 93.7%, while the controls remained 84.6% negative.

Darkfield illuminations of the fresh tissue showed that the inoculated rabbits were 96% positive, the controls 81.3% negative. Cultures of the inoculated animals were 90% positive; for the controls, 77.7% negative.

The results were obtained within three weeks, as did Chesney in feeding cabbage to the rabbits. Prolonged inoculations gave still more positive results. (Fig. 9-10).

In order to demonstrate that the human goiter fungus and the cabbage fungus were identical, the human goiter fungus was used for the inoculation in 16 rabbits, keeping 16 controls. The incidence of goiter in the inoculated rabbits was 95% positive, the controls, 69.2% negative. Darkfield illumination for the inoculated animals was 83.4% positive, and for the controls, 85.5% negative, hence, the conclusion that the *goiter fungus* and the *cabbage fungus are the same seems justified.*

In order to see if iodine protects the rabbits against goiter, 22 rabbits, each 8 weeks old, were inoculated with the cabbage fungus and fed iodine through their drinking water (16 controls). The incidence of goiter produced in the inoculated rabbits was 73.7% positive, the controls, 85.75% negative. A *simple nodular goiter was even obtained* (Fig. 11 and 12). Darkfield illumination was 96.9% positive for the inoculated animals, 86.85% negative for the controls.

Cultures were 87.5% positive for the inoculated animals; 87.7% negative for the controls. Hence, the conclusion that *iodine deficiency* is not the *cause of goiter* in this series of rabbits seems justified and that iodine *did not protect these rabbits against the occurrence of goiter is also confirmed.*

All that may be said is that iodine reduces only moderately the incidence of goiter.

The same type of experimentation as described above was made with human goiter fungus instead of the cabbage fungus, and a large amount of Lugol's solution placed in the drinking water.

The incidence of goiter obtained in 9 inoculated rabbits of the same age gave 89% positive for the inoculated and 77.8% negative for the controls (9 controls). Darkfield illumination yielded 88% positive results for the inoculated animals, and 75% negative for the controls.

Cultures were 88% positive for the inoculated rabbits; 75% negative for the controls. Hence again the conclusion that *iodine deficiency is not the cause of goiter, at least not in these rabbits.* Furthermore, iodine *did not protect the rabbits from having goiter.* All that may be said is that iodine influences only moderately the incidence of goiter.

CONCLUSIONS

1. In goiter there is constantly found an organism that can be studied and

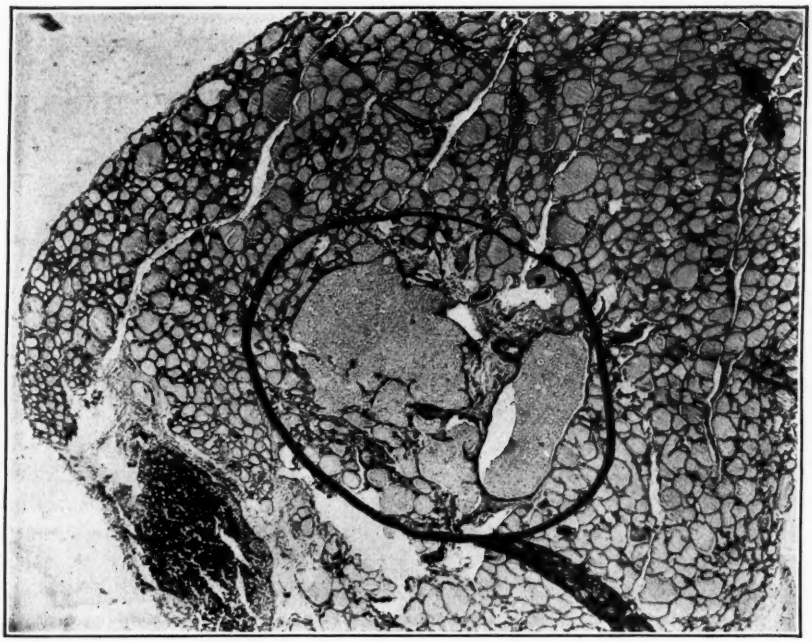


Fig. 11.—Nodular goiter. Low magnification. × 15.

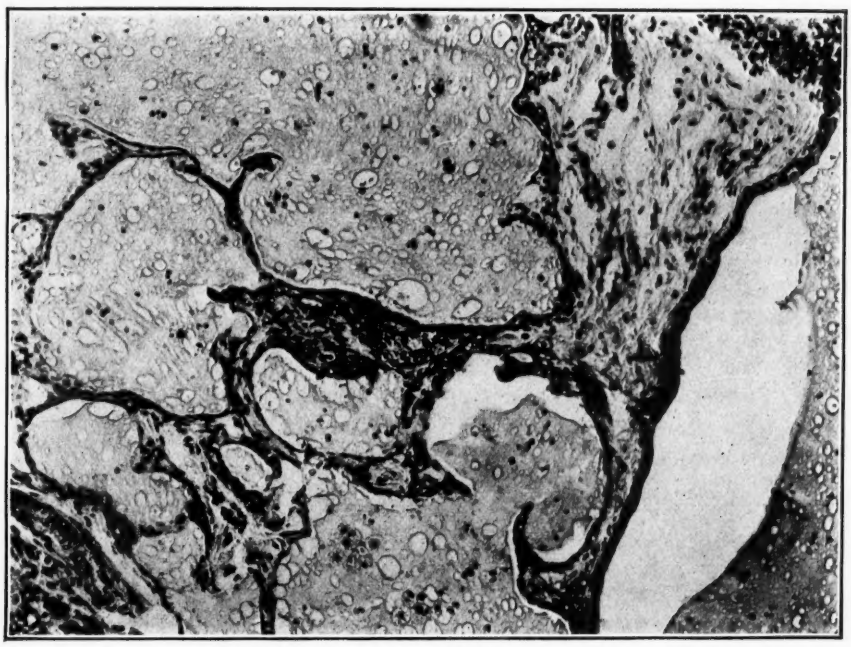


Fig. 12.—Nodular goiter—higher magnification. × 150.

Figs. 11 and 12.—Series 9.—Cabbage fungus plus Lugol's. Results obtained in one hundred days after 17 intramuscular injections. Lugol's in daily boiled drinking water.

cultivated. It reproduces by budding, asexual and sexual reproduction and finally by true sexual fertilization. Let us call it the goiter *fungus*. It most likely belongs to the *genus Alternaria*, of the order Hyphomycetes. The species goes through a sporulating stage during the spring and summer, and a resting stage in winter. Micro-organisms of the streptococcus variety were uncommonly found.

2. The same elements that go to form the life cycle of the goiter fungus can be seen in fixed stained tissues.

3. The same various life-cycle elements that form the goiter fungus can be found in the water supply of endemic foci.

4. Cultures of the goiter fungus inoculated to 7 dogs, produced an incidence of 66% of goiter in the animals experimented upon. The recovery of the goiter fungus was positive in 71.4% of the animals subjected to experiment.

While these results as stated may not appear conclusive, nevertheless, in the face of subsequent investigations they carry great weight. They prove one thing, namely, that the very same goiter fungus that is so unquestionably active in producing goiter in rabbits, can do the same in dogs. It is another link in the chain of evidence.

5. Because of Chesney's et alii's report claiming that they could produce goiter in rabbits within two or three weeks by feeding cabbage to them, investigations were made to see if the cabbage contains the same fungus as was found in goiter.

6. Investigations show that the cabbage, raw or steamed, contains all the life-cycle elements that are related to the human goiter fungus.

7. This cabbage fungus can be cultivated and stained, as can the human goiter fungus.

8. Every precaution having been taken to eliminate as much as possible any outside contamination of the rabbits (food, water, earth, etc.) intramuscular inoculations of 69 rabbits and the study of 56 controls, eight to ten weks old, with cultures of the *cabbage fungus* gave an incidence of diffuse colloid goiter in 93.7%, while the controls remained largely negative in 84.6%.

The darkfield reclamation of fresh tissue showed that the inoculated rabbits were 96% positive; the controls, 80.3% negative. Cultures of the inoculated rabbits were 90% positive and the controls, 77.7% negative.

9. I have demonstrated that by using intramuscular injections of cultures of the cabbage fungus we can produce goiter in rabbits within three weeks, as was done by Chesney and others with cabbage feeding.

10. Because the goiter fungus and the cabbage fungus have the same morphological, cultural, tinctorial properties, this does not mean that they are the same organisms. However in order to demonstrate that this is the case, human *goiter fungus* was used for inoculations instead of the cabbage fungus. The incidence of goiter produced with this in 15 inoculated rabbits (16 controls) was *95 per cent positive. The controls were 69.2 per cent negative.* Dark field reclamation for the inoculated animals was 83.4 per cent positive, for the controls, 85.5 per cent negative. Hence the conclusion that the *goiter fungus and the cabbage fungus* are the same, seems justified.

11. In order to see if *iodine* protects the rabbits against goiter, 22 rabbits, aged eight weeks, (16 controls) were inoculated with the *cabbage fungus* and fed iodine through the drinking water. Precautions against outside contamination were taken. The incidence of goiter produced with it in the inoculated series was 73.7 per cent positive. Controls, 85.75 per cent negative. A *small nodular goiter was even obtained.* Dark field reclamation was 96.9 per cent positive for the inoculated; 86.85 per cent negative for the controls.

Cultures were 87.5 per cent positive for the inoculated; 87.5 per cent negative for

the controls. Hence the conclusion, that *iodine deficiency is not the cause of goiter* in this series of rabbits; furthermore, that iodine did not protect these rabbits against the occurrence of goiter is also apparent. All that can be said is that iodine reduced only moderately the incidence of goiter.

12. The same type of experimentation as described above in paragraph 10 was made with *human goiter fungus* instead of the cabbage fungus. Lugol's solution was administered in the drinking water.

The incidence of goiter obtained in 9 inoculated and 9 controls of the same age was 89% for the inoculated, and 77.8% negative for the controls.

Dark field reclamation was 88 per cent positive for the inoculated and 75 per cent negative for the controls.

Cultures were 88 per cent positive for the inoculated; 75 per cent negative for the controls.

Hence the conclusion, that the human goiter fungus and the cabbage fungus are the same, that *iodine deficiency is not the cause of goiter,* at least for these rabbits; furthermore that *iodine did not prevent the rabbits from having goiter* also seems apparent. All that can be said is that iodine reduced only moderately the incidence of goiter.

13. I believe I have fulfilled Koch's postulate, namely, to have isolated a living organism from the goiter of patients and to have cultivated it; to have reproduced experimentally goiter in animals with it and to have reclaimed the organism from the animals experimented upon.

I have shown that goiter fungus is present in the water supply, and so far in one vegetable, the *cabbage.* With the same cabbage fungus I have reproduced goiter in rabbits and reclaimed the fungus from the rabbits inoculated. I have also shown that human goiter fungus and cabbage fungus are the same. Hence, the conclusion that *goiter is produced by a fungus transmitted to man by the drinking water and vegetables. Thus the contagium vivum* theory seemed to be substantial.

14. This latter theory explains many discrepancies that before were hard to understand. It explains why goiter is endemic. It explains why goiter appears in some regions and disappears in others. It explains the "summer goiter" of tourists, who have no goiter but acquire one by spending their summer vacations in an endemic region. This becomes clear since we know that the fungus goes through a resting stage in winter and sporulates in the spring and summer. It explains why impure, contaminated waters produce goiter; naturally they would since they contain the fungus spores. It explains why regions with a *low iodine content* of the water and soil may have no goiter, while regions with a *high iodine content* may be markedly endemic. The reason must be that in the first instance, the goiter fungus is absent while in the second instance it is present. It explains why the topography seems to have something to do with the occurrence of the endemic, why turbulent waters are more goitrigenous than placid waters. Naturally, the goiter spores will accumulate at the bottom of the slopes, valleys, etc., will be carried and churned by the turbulent waters, while they will sink in placid streams. It will explain why people having goiter may see it disappear in changing regions or country.

15. The fact that winter cabbage is less goitrigenous to the rabbits than is the summer cabbage is explained by the resting stage the fungus goes through during the winter and the sporulating period of the spring, as does the species belonging to the *genus Alternaria.*

16. Since the goiter fungus is found in thyrotoxic goiter also; since the thyrotoxic goiter is more prevalent in summer than in the winter season; since we know that the goiter fungus goes through a

resting stage in winter, and sporulates in the spring and summer, the thought comes to one's mind that possibly the goiter fungus might be the cause of both the endemic and the thyrotoxic goiter. This would be in keeping with the point of view of the *unity of causation* of a given infectious disease.

How the fungus operates in order to cause goiter I have no suggestions to offer. Naturally, those who cling to the iodine deficiency theory will claim that the goiter fungus affects the iodine chemical metabolism in some way or another. If it really does so, and that, by no means has been shown, then the iodine deficiency is no longer the *primary cause* of goiter.

It is well known in parasitology that when environmental conditions are not suitable, spores will protect themselves by thickening their outside capsule. (Chlamydospores). When the environmental conditions again become favorable, the thick, outside capsule liquefies, disintegrates, and the spores contained therein are set free.

Since we have observed frequently that patients, as well as rabbits, treated with iodine, exhibit sometimes a very thick, enveloping membrane of their spore-sacs, which will prevent the setting free of their spores, it is possible that the beneficial effect that iodine has upon certain goiters is due to that very fact, namely, the inhibiting of the goiter spores. The chances are, however, that iodine acts as a germicidal agent. Thus would be explained Gaylord's experiments with iodine, bichloride of mercury, arsenic, etc.

Assuming it were shown that these spores play a part in the production of thyrotoxic goiter, how they do it, I do not know, unless it is through the production of specific toxins which in certain suitable instances become markedly thyrotropic, thus inducing the picture of a thyroiditis. Perhaps, the fact that thyrotoxic goiter is more prevalent, or at best undergoes more marked exacerbation in spring and summer seasons, might be linked with the fact that the goiter fungus sporulates during the spring and summer and goes through a resting stage during the winter.

17. With the geological theory, with the iodine deficiency theory, it is difficult to conceive why 100 per cent of a population living in an endemic region has no goiter. With the goiter fungus point of view, one may readily understand this fact through the operation of the laws of immunity.

18. Near Budapest, the Danube River divides into two branches, between which there is an inhabited island. The sole occupation of the inhabitants is to raise cabbage the quality of which they claim is superior to all cabbages. The island is one of the heaviest endemic foci. In view of what we know now of the goitrigenous properties of the cabbage, this fact becomes very significant.

19. Another significant fact is the one reported by Prof. V. Suk: The worst goiter centers in the Carpathian Highlands are found in the poor villages where, during unfavorable months, more than two-thirds of the population live to a great extent on cabbage, with the addition of potatoes, cornbread and oats.

20. It is highly probable that further investigation will show that the goiter fungus is present in vegetation, and vegetables other than the cabbage.

21. The reason why the presence of the fungus in goiter material has been overlooked by investigators is most likely due to the polymorphic aspect of its life-cycle elements, and the failure to piece together these various elements in an orderly life-cycle scheme. One author has indeed observed some of these elements, but did not realize their significance. For instance, Merck observed pyramidal forms, which are, as we have seen, sporocysts liberated by the disintegration of a zygote.

22. I am perfectly aware that most likely, some of my life cycle interpre-

tations will undergo revision. One needs only to go through the various books on Parasitology to see how varied are some of the life-cycle interpretations of many parasites.

So far as I am concerned, the crux of the question does not lie so much in the accuracy of the description of the life cycle, but it lies in the fact that throughout the whole investigation the fungus appears to be constantly present.

23. Indeed, not only have we found it in the goiter material, in the water supply, in cabbage, but with it we have been able to reproduce goiter in animals with such a high incidence that doubt cannot be entertained as to its capacity to produce goiter, not only in animals but in man, also.

24. On the strength of our experimentation, goiter is not *primarily due to iodine deficiency, nor does iodine prevent goiter.*

RIASSUNTO

L'autore ritiene insostenibile la teoria geologica che assegnerebbe alle proprieta' dall'acqua potabile attraversante i diversi strati il potere di causare il gozzo. Se questo fosse vero i strati geologici dovrebbero essere sempre identici nelle localita' dove il gozzo e' endemico. Tale identita' non esiste.

La carenza d'iodio non puo' essere considerata come la causa primaria del gozzo. Si citano gli esperimenti di Gaylord che provano che il gozzo sperimentale non si produce nelle trote se non si aggiunga all'acqua iodio bicloruro di mercurio o arsenico. Sarebbe ridicolo pretendere che la caranza di arsenico o mercurio fosse in questo caso la causa del gozzo.

Negli esami microscopici in campo oscuro di gozzi umani estirpati, si e' constatato la presenza costante di multiple forme che sono fasi evolotive del medesimo organismo. Questo organismo si presenta con una spora ordinariamente di colore dorato ma che puo' essere anche di tinta bluastra e che passa per differenti sta di sviluppo. Questa spora si riproduce per gemmazione per processo asessuale, per l'unione sessuale e per vera fertilizzazione.

Uno spirillo e' stato anche osservato nel campo microscopico immobile. Non e' un organismo; un flagello od un sterigma. Questo parasita rassomiglia in ogni aspetto ad un fungo, probabilemente appartenente all'ordine degli ifomiceti, genere alternaria.

Questo medesimo fungo fu scoperto nelle acque potabili dove il gozzo e' endemico. Con questo fungo trovato nei gozzi umani; si e' riprodotto il gozzo in 42.8% di cani inoculati. Questo stesso, fungo fu ricavato dal 71.4% dei cani usati. Il fungo fu trovato anche nei cavoli ed isolati in coltura. L'iniezione intramuscolari di queste colture fatte a 95 conigli giovani risultarono nella produzione del gozzo in 93.4%. Questo stesso risultato fu ottenuto tanto con il fungo isolato dal gozzo sperimentale prodotto da culture da cavoli come da quelle ricavate dal gozzo umano.

Questo prova che il fungo isolato dal cavolo e quello isolato dal gozzo sono identici.

Una altra serie di giovani conigli furono iniettati con cultura del fungo, ma allo stesso tempo fu somministrato iodio nell'acqua potabile con l'intenzione di accertare se il iodio impedirebbe lo sviluppo del gozzo. Il gozzo appari in 73.7% dei casi e di tipo nodulare. Questa dimostra che il gozzo non e' dovuto alla carenza dell'iodio. Le conclusioni da dedursi da questa ricerca sono le seguenti:

1. Esiste nei gozzi umani e nei cavoli un fungo che sembra appartenare al genere alternaria.

2. Il fungo puo' essere ottenuto in cultura.

3. Il fungo del gozzo e quello del cavolo sembrano identici.

4. Con questo fungo si puo' produrre sperimentalmente il gozzo.

5. L'iodio non protegge gli animali iniettati con la cultura del fungo dal svil-

uppo del gozzo. Tutto quello che si e' ottenuto e' una riduzione minima dell'incidenza di sviluppo.

6. Il gozzo non e' quindi dovuto ad una carenza fisiologica di iodio.

7. Sembra ragionevole concludere che il gozzo endemico e' dovuto ad un fungo.

RESUMEN

La teoría geológica que pretende que el agua potable que, al atravesar los varios estratos geológicos, lleva con él partículos de esos depósitos que causarán bocio, no es sostenible. Si fuese así, esos depósitos geológicos serían siempre idénticos en las localidades en las que el bocio es endémico. Pero no lo son.

La falta de yodo no puede considerarse como la "causa primaria" del bocio. Se citan los experimentos de Gaylord que prueban que el bocio experimental no se produce en las truchas si se le agrega al agua, yodo, bicloruro de mercurio o arsénico. Sería ridículo pretender que la falta de arsénico o mercurio fuese en este caso también la causa del bocio.

El examen en el campo obscuro del bocio humano extirpado por operación demuestra la presencia constante de varias y múltiples formas que son fases evolutivas del mismo organismo. Este organismo está representado por un esporo, que generalmente es de color dorado pero que puede ser también de un color azulado y que atraviesa varios estadios de desarrollo. La manera de reproducción varía. Este esporo se reproduce por gemación, por el proceso asexual, por la unión sexual y por verdadera fertilización.

En el campo microscópico se observa a menudo como un espirilo inmóvil. No es un organismo vivo. Con toda probabilidad es un flagelo o un esterigma.

El mencionado parásito es muy semejante a un hongo, probablemente perteneciente al orden de los hifomicetos, del género Alternaria.

Este mismo hongo ha sido descubierto en aguas potables de regiones en las que el bocio es endémico.

Con este mismo hongo encontrado en el bocio humano, se reprodujó el bocio en 42.8 por ciento de los cachorros inoculados. Este mismo hongo se recobró en 71.4 por ciento de estos perros.

Este mismo hongo se encontró en las coles y se aisló por medio de cultivos.

Las inyecciones intramusculares de estos cultivos en conejitos produjeron bocio en 95 de los animales, 83.4 por ciento de los casos.

Los mismos resultados se obtuvieron cuando se inyectó el hongo del bocio humano, en vez de inyectar el hongo de la col.

Esto prueba que el hongo de la col y el del bocio son idénticos.

Los conejitos de otra serie se inyectaron con el hongo pero se les dió yodo en el agua de beber a fin de verificar si el yodo impedía la formación del bocio. El bocio apareció en 73.7 por ciento de los casos. Se obtuvo hasta un bocio nodular.

Esto prueba que el bocio no se debe a falta de yodo.

Las conclusiones que pueden derivarse de estas investigaciones son las siguientes:

1. En el bocio humano y en la col existe un hongo que parece pertenecer al género Alternaria.

2. El hongo puede obtenerse en cultivos.

3. El hongo del bocio y el de la col parecen ser idénticos.

4. El bocio puede reproducirse experimentalmente con este hongo.

5. El yodo no protege a los animales contra la producción del bocio; solo se obtiene una ligera reducción en la incidencia del bocio.

6. Como consecuencia resulta que el bocio no se debe a una falta fisiológica del yodo.

7. Parece lógico concluir que el bocio endémico se debe a un hongo.

RÉSUMÉ

La théorie géologique qui veut que l'eau potable qui, passant sur les divers strata géologiques, entraine avec elle des particules de ces dépots qui causeront le goitre, n'est pas tenable. En effet, s'il en était ainsi ces mêmes dêpots géologiques, là ou le goitre est endemique, devraient toujours être identiques à eux-mêmes. Ils ne le sont pas.

La carence d'iode ne pent être considérée comme une *"cause premiere"* du goitre. Les expériences de Gaylord sont citées qui prouvent que le goitre expérimental chez la truite ne se produit pas si l'en ajoute à l'eau, de l'iode, du bichlorure de mercure, de l'arsenic. Il serait ridicule de prétendre que la carence de mercure et d'arsenic est aussi, en l'occurrence, la cause du goitre.

Lá examen à la chambre noire du goitre humain enlevé à l'opération démontre la présence constante de formes multiples et variées qui no sont que des stades de développment d'un même organism. Cet organism est représenté par une spore, ordinairement de couleur dorée mais qui peut être aussi d'une teinte bleuatre et qui passe par different stades du développment. Le mode de reproduction diffère. Cette spore se reproduit par bourgeonnement, par le procédé asexual, par union sexuelle, et par vraie fertilization.

Un spirille est souvent observé dans le champs microscopique; il est immobile. Ca n'est point un organism vivant. C'est fort probablement un flagellum ou un stérigma.

Ce parasite dont nous avons parlé plus *haut,* resemble en tout point à un *fungus,* probablement appartenant a l'ordre des *hyphomycètes, genre Alternaria.*

Ce même fungus fut découvert dans les eaux potables de régions ou le goitre est endémique.

Avec ce même fungus trouvé dans le goitre humain, un goitre fut reproduit dans 42.8% des jeunes chiens inoculés. Ce même fungus fut recouvert dans 71.4% de ces chiens.

Ce même fungus fur trouvé dans les choux et isolé en cultures.

Après injections intramusculaires de ces cultures faites a de jeunes lapins, 95 de ces lapins devinrent goitreux, 83.4% des cas.

Ces mêmes résultats furent aussi obtenus, si au lieu d'injecter le fungus du choux, on injecta le fungus provenant du goitre humain.

Ceci prouve que le fungus du choux et le fungus du goitre sont les mêmes.

Une autre serie de jeunes lapins furent injecteés avec le fungus, mais en même temps ou donna de l'iode dans l'eau potable dans le but de savoir si l'iode empècherait la formation du goitre. Le goitre apparut dans 73.7% des cas; on obtint même un goitre nodulaire.

Ceci démontre que le goitre n'est pas du à la carence d'iode.

Les conclusions que l'on peut déduire de ces recherches sont les suivantes.

1. Il existe dans le goitre humain et dans les choux un *fungus* qui semble appartenir au *genre Alternaria.*
2. Le fungus peut être obtenu en cultures.
3. Le fungus du goitre et celui des choux paraissent être identiques.
4. Avec ce fungus on peut reproduire expérimentalement le goitre.
5. L'iode ne protège pas les animaux injectés contre la production du goitre; tout ce que l'on obtient est une reduction minime de l'incidence goitreuse.
6. Le goitre n'est donc pas du à une carence physiologique de l'iode.
7. Il parait raisonable de conclure que le goitre endemique est du à un *fungus.*

ZUSAMMENFASSUNG

Die geologische Theorie, welche annimmt, dass Trinkwasser, welches während seines Durchganges durch verschiedene geologische Schichten Teilchen aufnimmt, welche Kropf verursachen, ist nicht haltbar. Wenn dies so wäre, dann müssten die geologischen Schichten in Gegen-

den, wo Kropf endemisch ist, immer dieselben sein. Dieses ist aber nicht der Fall.

Der Mangel an Jod kann nicht als erste Ursache des Kropfes angesehen werden. Die Erfahrungen von Gaylord sind angeführt, welche bezeugen, dass experimenteller Kropf nicht in Forellen auftritt, wenn Jod, Quecksilberchlorid oder Arsenik dem Wasser beigemengt werden. Es wäre lächerlich zu sagen, dass Mangel an Quecksilber oder Arsenik in diesem Falle auch die Ursache von Kropf wäre.

Dunkelfeld-Untersuchung von menschlichem Kropf, der durch Operation entfernt wurde, zeigt die konstante Gegenwart von disseminierten und verschiedenen Gebilden, welche Entwicklungsstufen desselben Organismus sind. Dieser Organismus ist eine Spore, gewöhnlich von goldener Farbe, aber zuweilen auch von blauem Ton, welche verschiedene Stufen der Entwickelung durchläuft. Die Art der Vermehrung wechselt. Die Spore pflanzt sich fort durch Knospung, durch ungeschlechtliche Fortpflanzung, durch geschlechtliche Vereinigung und durch echte Befruchtung.

Oft sieht man ein Spirillum im mikroskopischen Felde; es ist unbeweglich. Es ist kein lebender Organismus. Es ist wahrscheinlich ein Flagellum oder ein Sterigma. Der genannte Parasit gleicht in jeder Hinsicht einem Fungus und gehört wahrscheinlich zur Reihe der Fadenpilze (Hyphomycetes), Gattung Alternaria.

Dieser Pilz ist im Trinkwasser von Gegenden gefunden worden, wo Kropf endemisch ist.

Mit demselben Pilz, der in menschlichem Kropfe gefunden wurde, war es möglich, Kropf in 42.8 Prozent von damit geimpften jungen Hunden zu erzeugen. Derselbe Pilz konnte dann in 71.4 Prozent dieser Hunde wiedergefunden werden.

Derselbe Pilz wurde in Kohlköpfen gefunden und durch Züchtung isoliert. Durch Einspritzung dieser Kulturen in den Muskel junger Kaninchen bekamen 95 dieser Kaninchen Kropf, das ist 83.4 Prozent der Fälle.

Man erhielt dieselben Resultate, wenn, anstatt des Pilzes vom Kohl, der Pilz von menschlichem Kropf injiziert wurde.

Das beweist, dass der Pilz vom Kohl und der vom menschlichen Kropf identisch sind.

Junge Kaninchen einer anderen Gruppe, welche auch mit dem Pilz injiziert wurden, erhielten gleichzeitig Jod im Trinkwasser, um festzustellen, ob Jod die Entwickelung von Kropf verhindern kann. Kropf entwickelte sich in 73.7 Prozent der Fälle, Fdarunter sogar ein knotiger Kropf.

Das zeigt, dass Kropf nicht durch Jodmangel verursacht ist.

Die Folgerungen, die sich aus diesen Unternehmungen ergeben, sind die folgenden:

1. Der menschliche Kropf und Kohl enthalten einen Pilz, welcher anscheinend zur Gattung Alternaria gehört.
2. Der Pilz kann durch Züchtung erhalten werden.
3. Der Pilz des Kropfes und des Kohles scheinen identisch zu sein.
4. Es ist möglich, mit diesem Pilz Kropf experimentell zu produzieren.
5. Jod schützt injizierte Tiere nicht gegen die Entwickelung von Kropf; nur eine kleine Verringerung in der Häufigkeit von Kropf wurde erlangt.
6. Kropf ist darum nicht verursacht durch physiologischen Jodmangel.
7. Es erscheint logisch zu folgern, dass endemischer Kropf durch einen Pilz verursacht ist.

EXOPHTHALMOS OF THE TYPE SEEN IN GRAVES' DISEASE

DR. DAVID MARINE*

THE chronic progressive exophthalmos of the type seen in Graves' disease, even when uncomplicated, is obviously a highly complex phenomenon, perhaps as complex etiologically as Graves' disease. Although both have been studied for more than a century they are still involved in doubt and controversy.

My primary interest in exophthalmos is because a further understanding of this symptom might throw additional light on the etiology of Graves' disease. There is also the immediately practical question of how to continue subtotal thyroidectomy in the treatment of Graves' disease and at the same time prevent the occasional development of so-called "paradoxical" or malignant exophthalmos.

The exophthalmos of Graves' disease is a chronic, progressive, bilateral protrusion of the orbital contents. One says bilateral, though rarely it is unilateral, and usually it is not symmetrical, either in man or in animals—of the animals so far studied it is most variable in the guinea pig. This form of exophthalmos is also seen occasionaly in human rickets (1) and may occur in the severe low P rickets in rats (Thompson (2)). It is also seen in acromegaly (3), in the leukemias (4), in chronic nephritis (5), and in experimental chronic renal insufficiency. Possibly, the forms seen in congenital syphilis (6) and in the Hand-Schüller-Christian syndrome (7) may be of this type. Exophthalmos is usually a late symptom in all of these diseases, just as in Graves' disease. It is present in about two-thirds of the cases of primary Graves' disease, i.e., below the age of 45, but relatively infrequent in those cases developing during the decline of sexual life (toxic adenoma, adenomatous goiter, iodine Basedow), so that if all cases, irrespective of age and sex are included, it is present in about one third of the cases.

Etiology.

Basedow (8) thought it was due to a hypertrophy of the cellular tissues in the orbit. Sattler (9), W. Kraus (10) and many others thought it was due to venous congestion and edema. After the demonstration by Askanazy (11) of fatty degeneration of the recti muscles in Graves' disease and the occurrence of a chronic inflammatory swelling of these muscles in the late stages of severe exophthalmos (Naffziger (12)), the view that the exophthalmos was due to enlargement and weakness of these muscles was advanced. Supplementing all these theories is the idea that an increased normal or abnormal thyroid secretion is also necessary. None of these theories are now considered of primary importance, since the exophthalmos, at least in its earlier stages, shows considerable variation from day to day, both in man and animals, and also may disappear after death of after section of the cervical sympathetic. However, the orbital changes mentioned above are unquestionably important secondary, complicating, and even contributing, factors.

The experimental study of exophthalmos began in 1858 with the discovery by H. Mueller (13) of the smooth muscles of the orbit of mammals. Mueller recognized two groups of these muscles; (1) *periorbital* and (2) *palpebral muscles.* The *periorbital muscle* is well developed in lower mammals and consists of a muscular cone whose base is attached to the orbital septum and bony rim of the

*From the Laboratory Division, Montefiore Hospital, New York City.

orbit and whose apex is attached to the ring of Zinn surrounding the optic foramen. In amphibians, reptiles, birds and some aquatic mammals (seal, dolphin) the muscle fibers have cross striations. This is a powerful muscle and envelops the entire contents of the orbit except the lacrimal gland. In the lower mammals it is capable of pushing the orbital contents forward when electrically stimulated in spite of the normal antagonism of the recti and retractor bulbi muscles. This was first demonstrated by Wagner in 1859 (14) and more extensively studied by Claude Bernard, Aran and others. MacCallum and Cornell (15) (1904) by removing the roof of the orbit in the dog and stimulating the cervical sympathetic, observed typical smooth muscle contraction waves passing back over the muscle.

In man and the anthropoids, the periorbital muscle is vestigial and because of this, most students have rejected the idea that its contraction can have any influence on the position of the orbital contents in man. We know that cutting the cervical sympathetic causes a Horner's syndrome in man just as in animals, although the ensuing enophthalmos is not quite so striking in man. The *palpebral muscles* of Mueller are present in both the upper and lower lids only in man and anthropoids. In the lower mammals palpebral muscles composed of smooth muscle fibers occur only in the lower lid and in some mammals (seal and dolphin) these muscles also are striated. These involuntary palpebral muscles in man form an incomplete ring around the globe (Hesser (16)) and ancestrally are derived from the striated recti muscles. In 1907 Landstrom (17) described a cylinder of smooth muscle fibers inserted into the fascia of the globe near its equator and extending anteriorly to the orbital septum. Evidence for separating such a group of muscle fibers from the palpebral muscles of Mueller seems inadequate. No one doubts that lid-lag (von Graefe's sign) and widening of the palpebral fissure (Stellwag's and Dalrymple's signs) are principally due to increased tone of the palpebral muscles of Meuller. It is only the protrusion of the globe in man by the increased tone of the vestigial periorbital muscle that is doubted, even though section of the cervical sympathetic instantly abolishes the exophthalmos and lid spasm and produces enophthalmos in man as well as in animals. As above mentioned, this muscle is fully capable of protruding the orbital contents in the lower mammals, but in man and in monkeys it seems to be inadequate and one has to invoke the additional factor of a weakness of the recti or antagonistic muscles to account for the exophthalmos of Graves' disease.

The sympathetic innervation of the muscles of Mueller as shown by Claude Bernard may be represented schematically by ganglion cells in the lateral horns of the spinal cord, whose axones emerge at the level of the first and second dorsal vertebrae, and end around the ganglion cells of the superior cervical ganglion from which the postganglionic fibers extend to the muscles. In 1909 Karplus and Kreidl (18) showed that stimulation of the hypothalamus in cats, laterally and slightly posterior to the infundibulum, caused maximum dilatation of the pupil, widening of the palpebral fissure, and thus established true sympathetic representation in the hypothalamus. The pathway from the hypothalamus to the lateral horns of the spinal cord is unknown.

In 1931 Schockert (19), working with baby ducks, and Loeb and his co-workers (20), using young guinea pigs, observed that exophthalmos developed in from seven to ten days following the daily injection of anterior pituitary extracts. In 1932 Marine, Baumann, Spence and Cipra (21) reported the occurrence of exophthalmos in puberal rabbits that developed parenchymatous goiter on a diet

of alfalfa hay and oats and the daily intramuscular injection of 0.1 cc. methyl cyanide. The fact that exophthalmos did not develop until large parenchymatous goiters appeared and that such goiters were associated with hypertrophy of the anterior pituitary of the type seen after thyroidectomy suggested that there was a close association between thyroid deficiency and activity of the anterior pituitary and exophthalmos. Accordingly, we removed the thyroid from rabbits and found that exphthalmos was more easily and more quickly produced (22). By analogy it also seemed likely that the production of exophthalmos in guinea pigs by anterior pituitary extracts would be facilitated by thyroidectomy. This also was found to be true (23). Smelser has reported similar observations (24). The observations of Friedgood (25) on guinea pigs further confirmed the importance of thyroid deficiency. He found that the best exophthalmos produced by anterior pituitary extracts developed after the metabolic rates had fallen below normal. It was now established that the thyroid hormone took no positive part in the production of exophthalmos and also that some substance produced in the anterior pituitary was immediately responsible for the exophthalmos by acting on a sympathetic nervous mechanism within the central nervous system. Pituitary extracts will not produce exophthalmos if the cervical sympathetic is cut.

It is well known that exophthalmos cannot be produced by the administration of thyroxine or desiccated thyroid either in man or animals, despite occasional positive reports in the literature. Indeed, the opposite is true. Thyroxine offers specific protection against the development of exophthalmos in rabbits, guinea pigs and probably man. It has also been shown that this form of exophthalmos may be cured in rabbits by thyroxine (see figure 2), and there is considerable evidence that it is beneficial in human exophthalmos. In the presence of abundant thryoid tissue, iodine is as effective as desiccated thyroid in preventing exophthalmos in rabbits and guinea pigs, and there is rapidly accumulating evidence that the present wide-spread use of iodine in the treatment of Graves' disease is gradually reducing the incidence of exophthalmos in Graves' disease. Plummer and Wilder (26) report a drop from 69 to 40 per cent in the incidence of exophthalmos since 1922. The mechanism of exophthalmos production appears to be due to the action of an excess of some anterior pituitary hormone on a sympathetic center in the hypothalamus. Such stimulation of the sympathetic center apparently becomes effective only when thyroxine is greatly decreased, which suggests that such centers are held in a delicate balance by the interaction of many hormonal factors. Thyroid insufficiency, relative or absolute, therefore, is a necessary condition in order that this form of exophthalmos may develop, yet it does not occur in the severe thyroid deficiencies of endemic cretinism or in Gull's disease. It is obvious, therefore, that other factors than thyroid deficiency and hyperactivity of the anterior pituitary are involved. We have many times pointed out that sex and age are important. In rabbits it is produced most easily at the age of puberty and is approximately 20 per cent more frequent in males. We have also pointed out that those rabbits which develop the best exophthalmos are sexually the more active. In view of the age and sex differences and of the increased sexual development following thyroidectomy in puberal rabbits, we have studied the effect of gonadectomy on the development of the exophthalmos, and found that no frank exophthalmos developed in 38 adult male and 23 female rabbits after gonadectomy (27). We have also studied the effect of gonadectomy on the regression of exophthalmos in 9 male rabbits and found that it regressed completely within five

weeks, whereas it was unchanged in the controls. Attempts to analyze the sex gland factor have been made by means of cryptorchidism, by which we attempted to split the possible effect of the germinal epithelium from that of the interstitial cells. We found that while exophthalmos receded much more slowly in cryptorchid rabbits than in castrates, it receded nevertheless (28). Cryptorchidism is now known not to preserve full functional activity of the interstitial cells and does not prevent castration changes in the anterior pituitary. The evidence so far obtained indicates that probably the degree of functional activity of the interstitial cells is a factor in determining the development of exophthalmos and further suggests that the absence of exophthalmos in myxedma and in cretinism may be in some way related to the lack of development of the gonads as in cretinism or to the loss of some gonadal function as in myxedema.

Why female rabbits are more resistant to the development of exophthalmos is not known, although it is tempting to suggest that the protection which oestrone gives to the anterior pituitary may be a factor. The administration of oestrone, 100 R.U., twice daily for two months to male rabbits with fully developed exophthalmos has not noticeably influenced it. There are, however, several reports of human exophthalmos having been benefitted by oestrogenic substance (Halpern, 1933 (29)). Injury of the suprarenal cortex (removal of left and curetting medulla of the right adrenal of rabbits) appears to favor the development of exophthalmos and to abolish the sex difference.

Other factors are also involved. For example, the diets necessary to produce experimental goiter and exophthalmos are abnormal, particularly as regards calcium and phosphorus ratios. Reference has already been made to the occurrence of exophthalmos in low P. high Ca. rickets, and since the work of Aub and coworkers (30) we know that great calcium and phosphorus losses occur in typical Graves' disease, even to the occurrence of osteoporosis. Pugsley and Anderson (31) have confirmed Aub's observations in the experimental Graves' disease-like syndrome of rats and guinea pigs produced by anterior pituitary extract. Since variations in the Ca and P ratios greatly influence the irritability of nerve and muscle cells it is possible that the abnormal Ca and P metabolism may be a basic factor, although nothing definite is known at present.

Finally there are some practical features that should be mentioned. It has been known since partial thyroidectomy was first introduced into the therapy of Graves' disease that occasionally exophthalmos developed or was made worse after the thyroidectomy. The more recent subtotal thyroidectomies associated with subnormal metabolic rates have undoubtedly further increased the incidence of post-thyroidectomy exophthalmos. I have collected 52 reports of such cases from the literature of the last 10 years and in the light of the sex difference in exophthalmos of rabbits it may be significant that 60 per cent of these human cases were also in males. As regards treatment the only medical measures that have been found beneficial are iodine and desiccated thyroid. In the experimental exophthalmos of rabbits iodine in the presence of sufficient thyroid tissue or desiccated thyroid in large doses usually effects a cure (see illustrations 1, 2, 3). In the human cases little success has been reported but most of these cases doubtless were complicated by secondary changes in the orbital tissues. On the other hand it may be readily prevented in rabbits and guinea pigs by iodine and desiccated thyroid. No thyroid insufficiency, no exophthalmos. All the recent literature reports indicate that it is being prevented in Graves' disease by the extensive use of iodine that has developed during the past

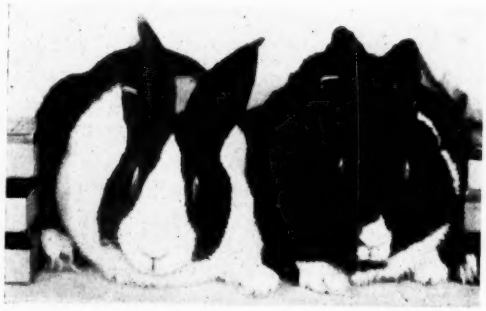


Fig. 1. March 6, 1935. Moderate exophthalmos postthyroidectomy. Males.

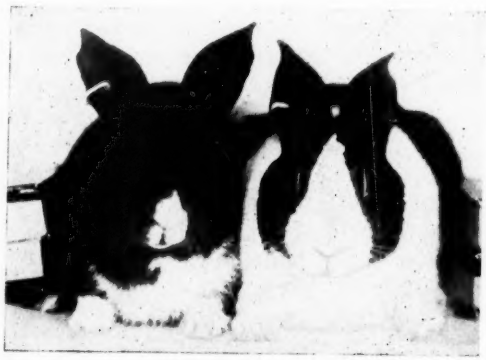


Fig. 2. April 23, 1935. Same rabbits as in Fig. 1. 48 days later, after having received 0.2 gms. desiccated thyroid daily during this period.

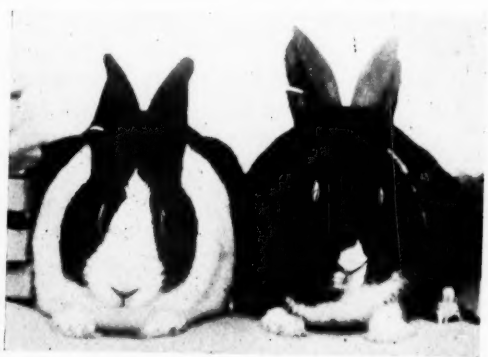


Fig. 3. July 16, 1935. Same rabbits as Figs. 1 and 2. Recurrence of exophthalmos after stopping desiccated thyroid.

15 years. The mode of action of iodine and thyroxine in preventing exophthalmos, I believe, is due to the maintenance of normal oxidation processes which in turn protect the pituitary from hyperactivity and in some way quite unknown this balance of pituitary and thyroid interrelations protects essential sympathetic nerve centers in the hypothalamus.

Regarding surgical treatment, division of the cervical sympathetic or removal of the superior cervical ganglion has been performed by Jaboulay (32), Jonnesco (33) and C. H. Mayo (34). In the experimental exophthalmos of rabbits and guinea pigs this operation completely and immediately abolishes the exophthalmos but in human cases it would not be justified in the mild uncomplicated cases where it would be effective, and it would be ineffective in those complicated by extensive organic changes in the orbital tissues. In this group the drastic operations are indicated when life saving measures are necessary.

SUMMARY

Thyroid insufficiency (relative or absolute) and anterior pituitary hyperactivity appear to be two of the essential factors underlying the development of the exophthalmos of Graves' disease. Yet the fact that exophthalmos does not occur in myxedema and cretinism clearly indicates that other factors than thyroid insufficiency and pituitary hyperactivity are necessary. Evidence has been reported indicating a definite sex difference and that certain alterations in gonadal function are involved. Disturbances in Ca and P metabolism affecting nerve and muscle activity appear to be necessary additional factors.

DISCUSSION

Dr. B. S. Oppenheimer: The exophthalmos of Graves' disease is evidently a complicated problem, which still requires much investigative work for its elucidation. What struck me most in Dr. Marine's experimental work is that he has been able to produce exophthalmos by means of pituitary thyrotropic hormone in thyroidectomized guinea pigs,

that is, in thyroidless animals. This work was confirmed one year later by Friedgood (1934). Friedgood also produced exophthalmos in intact guinea pigs treated with thyrotropic hormone of the anterior pituitary lobes, at a time when they were refractory as far as thyroid activity was concerned and exhibited low basal metabolic rates. So it is clear that the exophthalmos is not due to hyperthyroid activity, but directly or indirectly to the thyrotropic hormone. In fact thyroid insufficiency, rather than hyperthyroidism appears to favor the development and persistence of this type of exophthalmos. Perhaps the best clinical evidence that thyroid insufficiency is a factor in exophthalmos is the definite decline of exophthalmos since 1922 when the administration of iodine came into vogue. As clinicians, we must change our standpoint and take these new experimental facts into consideration in the management of this common disorder, Graves' disease. It is now customary for us to try to avoid the tendency to exophthalmos by giving some form of iodine after operation intermittently for a considerable time. If the thyroid gland has been removed for one reason or another, it is necessary to give dessicated thyroid or thyroxine.

Subtotal thyroidectomy is still the standard treatment for Graves' disease in most American clinics, and justly so, for the results are prompt, fairly sure, and the operative mortality, in the hands of experienced thyroid surgeons, remarkably low. If you will follow up these patients post-operatively for years, you will note two disadvantages: (1) the patients put on too much weight, and the female patients dislike this increase in fat, and (2) there is *ultimately* no very evident reduction of the exophthalmos. In fact, occasionally the exophthalmos is initiated only *after* the thyroidectomy, or greatly enhanced after the operation; rarely there even develops distressing *malignant* exophthalmos. It seems to me that both the post-operative obesity and exophthalmos are due to the surgical removal of too large a fraction of thyroid tissue. Surgeons tend to overdo the thyroidectomy, because they feel they can readily compensate for the subsequent hypothyroidism by the administration of iodine, thyroid extract or thyroxine.

It is a most striking fact that the degree of exophthalmos and the intensity of the thyrotoxicosis bear no apparent relation to each other, as they should if the exophthalmos were due to the hyperthyroidism.

The immediate cause of the proptosis has been attributed (1) to tonic contraction of the unstriped musculature in the orbit (originally discovered by Mueller), (2) to vascular engorgement of the orbit, (3) to increase of intra-orbital fat and edema. Naffziger has attempted to throw light upon the mechanism involved in the exophthalmos in human beings by his observations in malignant exophthalmos. He found the extrinsic muscles of the eyeballs swollen to 3 to 8 times their normal size. Such swelling greatly increased the intra-orbital tension. Microscopically he found the muscles presented signs of chronic inflammation—edema, round cell infiltration, loss of their normal architecture, areas of hyalinization, fragmentation and destruction. So Naffziger believes the progressive exophthalmos is mechanical in origin and due to lesions of the muscles.

R. Foster Moore believes that it is the excess of fat in the orbit which is responsible for the proptosis and it is this excess, perhaps combined with edema, which is responsible for the exophthalmos. The evidence has led him to the conclusion that proptosis is not dependent on the sympathetic nerve or unstriped muscle. He states that "the sympathetic nerve has been divided in many instances for the relief of proptosis and, were it the cause, the results of such operations should be conclusive and immediate,

whereas in fact they are greatly at variance. If the stimulation of the sympathetic causes proptosis, it would seem a necessary corollary that paralysis of it should result in enophthalmos. Drooping of the eyelid occurs, and this simulates a sunken eye, but, if enophthalmos is examined for, it will not be discovered." It should be stated, however, that a sympathectomy done in the advanced stage of Graves' disease with exophthalmos does not cause regression of the exophthalmos, because there are so many secondary changes which have occurred within the orbit.

To treat the lagophthalmos in exophthalmic goitre various measures have been attempted to safeguard the eye against injury, infection and ultimate blindness or loss. In general there have been 3 methods of counteracting the defective closure of the eyelids:

(1) The first method attacks the eyelids directly.

(2) The second is cervical sympathectomy which blocks the nerve stimuli to the orbit.

(3) The third attempts to decompress the orbit.

1. Among the first methods, at Mt. Sinai Hospital the ophthalmologists have used the external tarsorrhaphy of Fuchs which narrows the palpebral fissure, especially at the outer canthus of the eye. Dr. Goldstein has devised another ingenious plastic operation, a surgical recession of the attachment of the levator palpebrae superioris, for the lagophthalmos of exophthalmic goitre. This has been quite effective either alone or in combination with tarsorrhaphy.

2. Jaboulay in 1886 was the first to perform cervical sympathectomy, and I have a whole volume dated 1904 on the subject. The operation was done for exophthalmic goitre, for glaucoma, for optic nerve atrophy and for hydrophthalmos. The results were certainly not impressive.

3. Naffziger reported 6 cases of malignant exophthalmos in which he decompressed the roof of the orbit and the optic foramen, thus releasing the orbital contents and the pressure on the optic nerve. Naffziger and Jones do not advise this operation merely for persistent exophthalmos. They propose this operation when there are limitations of ocular movements, loss of vision, and changes in the optic nerve. Their results have been gratifying. Vision has been restored, optic atrophy has been halted, exophthalmos reduced, and the range of ocular movements improved. This operation is not one for cosmetic results. It is a severe operation done to save vision or loss of the eye.

Dr. Last has collected for me data of cases of exophthalmos due to Graves' disease that came to eye operation since 1930, at a general hospital (Mt. Sinai Hospital, New York).

There were 15 such cases in all. (see Table)

TABLE OF CASES OF EXOPHTHALMOS OPERATED AT MT. SINAI HOSPITAL SINCE 1930

Case	Sex	Age	Basal Metabolic Rate
1	Female	21	−10%
2	Male	40	− 8%
3	Female	49	+10%
4	Male	59	+19 to +34%
5	Female	39	+17%
6	Female	41	+23%
7	Male	26	+57%
8	Female	21	+23 to +57%
9	Female	22	Normal
10	Male	39	+16%
11	Male	62	+12%
12	Female	28	+14%
13	Female	23	+30%
14	Male		
15	Male		−5% & +31%

Sex Distribution: 8 females, 7 males. Relatively the percentage of males was high, as the ratio of females to males of Graves' disease usually is as 4:1.

Age: The ages ranged from 21-62 years, but 89 were under 40, and even the male

aged 62 had had his exophthalmos and his exophthalmic goitre for 20 years. In other words, as is well known, exophthalmos is far more frequent in the younger age group.

Basal Metabolic Rates: These were strikingly low at the time these patients came for their eye operation. Two had a basal metabolic rate of −10 and −8 respectively.

The operative procedures were as follows:

Recession of levator palpebrae superioris, unilateral	2
Recession of levator palpebrae superioris, bilateral	3
Recession and tarsorrhaphy	5
Tarsorrhaphy alone, unilateral	2
Tarsorrhaphy, bilateral	1
Enucleation of eyeball for exophthalmos and exposure-keratitis	1
Evisceration of right eye.* Lid suture of left eye	1

*Microscopic examination showed muscle degeneration with lymphatic infiltration.

In short, in applying Dr. Marine's original observations on animals to man, we find evidence that exophthalmos of the severer grades is relatively more common in males, that it occurs in the younger age group, and that the degree of exophthalmos is apparently not related to the intensity of the hyperthyroidism as expressed by increased metabolic rate.

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RIASSUNTO

L'autore ha preso in minuto esame l'esoftalmo associato al morbo Graves-Basedow ed ha passato in rivista le varie ipotesi che sono state avanzate in diversi tempi per spiegarne l'etiologie e la patogenesi. Ha presentato dati comparativi suit cambiamenti anatomo-patologici dei tessuti orbitali riscontrati in diversi animali nei quali e' stato prodotto l'esoftalmo sperimentale.

I dati di anatomia comparata sull'orbita sono interessanti e di valore nell-intrepretazione dei risultati sperimentali. Considerazione e' data anche all'esoftalmo associato ad altre malattie come il rachitismo, acromegalia, leucemie, nefriti chroniche; etc., Dai lavori sperimentali e dallo studio di dati clinici, l'autore si ritiene giustificato nell'avanzare una nuova spiegazione della patogenesi dell'-esoftalmo associato al morbo Graves-

Basedow. Ritiene che si tratta di una disfunzione pituitaria associata a deficienza tiroidea.

Negli animali tiroidectomizzati, le iniezioni d'estratto del lobo anteriore della pituitaria producono l'esoftalmo con maggiore rapidita' e severita' che negli animali normali.

La triossina non accelera la produzione dell'esoftalmo ma, per contra, ne ritarda lo sviluppo negli animali normali e tiroidectomizzati. Lo stesso effetto protettivo e' spiegato dalla somministrazione dioduri.

L'autore nega che sia mai stato prodotto l'esoftalmo nell-uomo dalla somministrazione di tiroide dessicata o dalla tirossina. L'estratto pituitario non produce l'esoftalmo se si e' fatto l'exeresi bilaterale del simpatico cervicalo. L'insufficienza tiroidea relative od assoluta, sarebbe la condizione sine qua non per la produzione dell-esoftalmo se esiste iperattivita' del lobo anteriore della pituitaria.

La rarita' dell'esoftalmo nel mixedema e cretinismo e' dovuta alla insufficienza di funzione delle gonadi. Negli animali sperimentali la castrazione impedisce lo sviluppo dell'esoftalmo.

Paradossale pero' e' il rapporto di buoni effetti sul ritardato sviluppo dell'esoftalmo che sarebbe prodotto della somministrazione d'estrina. Dal lato clinico, l'autore mette in evidenza che la tiroidectomia parziale nel morbo Graves-Basedow spesso aggrava l'esoftalmo associato, che, invece migliora' con la somministrazione di tiroidea secca e ioduri.

L'autore sostiene che la letteratura indica che, negli ultimi quindici anni, l'uso profilattico d'iodo, come la somministrazione preoperativa di preparati iodici abbiano diminuita l'incidenza dell'esoftalmo. Un disturbo del metabolismo del calcio-fosforo e' associato alla disfunzione tiroidea e della pituitaria per la produzione dell'esoftalmo.

RESUMEN

El autor hizo un estudio minucioso de la exoftalmía asociada al bocio del tipo Graves-Basedow y revisó las varias teorías que han prevalecido en diversas épocas con respecto a la etiología y la patogénesis. Presentó datos comparativos sobre las alteraciones anatomopatológicas de los tejidos orbitarios que se han encontrado en varios animales en los que se produjo la exoftalmía experimental.

Los datos de anatomía comparada en la órbita son interesantes y de valor en la interpretación de los resultados experimentales. La exoftalmía asociada con otras enfermedades, como el raquitismo, la acromegalia, las leucemias, la nefritis crónica, etc., fué también tomada en consideración. El autor, basado en los resultados de experimentos y de estudios clínicos, se considera autorizado para presentar una explicación nueva de la patogénesis de la exoftalmía asociada al bocio Graves-Basedow. Sostiene que se debe a una disfunción pituitaria asociada con insuficiencia tiroidea.

Las inyecciones de extracto del lóbulo anterior de la pituitaria producen exoftalmía con mayor rapidez y gravedad en los animales tiroiodectomizados que en los normales.

La administración de tiroxina no acelera el desarrollo de la exoftalmía en los animales normales y tiroidectomizados sino que, por el contrario, lo retardo. La administración de yoduros produce el mismo efecto protector.

El autor niega que la administración de tiroidea desecada o de tiroxina haya producido exoftalmía en el hombre. El extracto pituitario no produce exoftalmía si se ha hecho la exeresis bilateral del simpático cervical. La insuficiencia tiroidea relativa o absoluta, en asociación con hiperactividad del lóbulo anterior de la pituitaria, sería la condicion *sine qua non* para la producción de la exoftalmía.

La rareza de la exoftalmía en la mixedema y en el cretinismo se debe a la insuficiencia funcional de los gonados. En los animales de experimentación la cas-

tración impide el desarrollo de la exoftalmía.

Sin embargo, los buenos efectos de la administración de Estrina que retarda el desarrollo de la exoftalmía son un resultado paradóxico. En la práctica clínica, el autor senala que la tiroidectomía parcial en el bocio Graves-Basedow con frecuencia agrava la exoftalmía asociada la cual, por el contrario, mejora con la administración de tiroidea seca y de yoduros.

El autor sostiene que, según indica la literatura, la frecuencia de la exoftalmía ha disminuido en los últimos quince anos debido al uso preventivo del yodo y a la administración preoperatoria de preparados yodados. En la producción de la exoftalmía existe un trastorno del metabolismo del calcio y del fósforo asociado con una disfunción tiroidea y pituitaria.

ZUSAMMENFASSUNG

Der Verfasser hat Exophthalmus in Verbindung mit der Graves-Basedow-Krankheit und die zu verschiedenen Zeiten dargelegten mannigfaltigen Theorien bezüglich ihrer Aetiologie und Pathogenie sorgfältig untersucht. Er hat vergleichende Angaben bezüglich der anatomopathologischen Veränderungen der orbitalen Gewebe, gefunden in verschieden Tieren, in welchen durch Versuche Exophthalmus erzeugt wurde, dargelegt.

Die Angaben der vergleichenden Anatomie der Orbita sind interessant und wertvoll für die Erklärung der Versuchsergebnisse. Betrachtet wurde auch Exophthalmus assoziert mit anderen Krankheiten, so wie Englische Krankheit, Akromegalie, Leukämia, Nierenkrankheit, u.s. w. Auf Grund seiner Versuchsarbeiten und des Studiums klinischer Angaben hält sich der Verfasser berechtigt, eine neue Erklärung der Pathogenie des Exophthalmus assoziert mit der Graves-Basedow- Krankheit vorzulegen. Er glaubt an Vorhandensein einer pituitären Dysfunktion, begleitet von ungenügender Thyreoid-Tätigkeit.

In thyreoidektom ierten Tieren verursachen Injektionen von Extraktem des Hypophysenvorderlappen Exophthalmus rascher und mehr gefährlicherer Art als in normalen Tieren.

Thyroxin beschleunigt nicht die Erzeugung des Exophthalmus, sondern, im Gegenteil verzögert seine Entwicklung in normalen und thyreoidektomierten Tieren, und derselbe Schutzeffekt erscheint durch Eingeben der Iodide.

Der Verfasser erkennt nicht an dass Exophthalmus im Menschen je erzeugt wurde durch Eingeben von trockener Thyreoid-Drüse oder Thyroxin. Nach Durchführung bilateraler Exairese des cervikal Sympatetikus erzeugt pituitärer Extrakt keinen Exophthalmus. Relative oder absolute Untätigkeit der Schilddruse wäre die unentbehrliche Bedingung für die Erzeugung des Exophthalmus im Falle einer Hyperfunktion des Hypophysenvorderlappen.

Die Seltenheit von Exophalmus in Myxödem und Cretinismus beruht auf der ungenügenden Tätigkeit der Gonade. Kastration verhindert die Entwicklung des Exophthalmus in Versuchstieren.

Jedoch der Dericht über die guten Effekte bezüglich der Verzögerung der Entwicklung des Exophthalmus, erzeugt durch Eingeben von Oestrin, scheint paradox. Von dem klinischen Gesichtspunkt zeigt der Verfasser dass eine partielle thyreoidektomie im Falle der Graves-Basedow-Krankheit besonders den begleitenden Exophthalmus erschwert, welcher jedoch verbessert is durch Eingeben trockener Thyreoid Substanz und Jodide.

Der Verfasser denkt, dass die Literatur zeigt dass während der letzten fünfzehn Jahre die prophylaktische Verwendung des jods und die preoperative Eingabe von Jodpräparaten das Vorkommen des Exophthalmus reduziert haben. Eine Störung des Calcium-Phosphor Stoffwechsels ist assoziert mit der Thyreoid

und pituitären Hypophysen Dysfunktion in der Erzeugung des Exophthalmus.

RÉSUMÉ

L'auteur a considéré minutieusement l'exophthalmie qui accompagne la maladie de Graves-Basedow et a passé en revue les hypothèses variées qui ont été présentées à différents moments pour expliquer son étiologie et sa pathogénèse. Il a offert des renseignements comparatifs sur les changements anatomopathologiques des tissus orbitaux trouvés chez différents animaux chez lesquels l'expthalmie expérimentale a été produite.

Les renseignements de l'anatomie comparée de l'orbite sont interessants et ont de la valeur pour l'interprétation des résultats expérimentaux. Due considération est aussi donnée à l'exophthalmie qui accompagne d'autres maladies, comme le rachitisme, l'acromégalie, la leucémie, les néphrites chroniques, etc. Se basant sur les travaux expérimentaux et sur l'étude des renseignements cliniques, l'auteur se croit justifié à présenter une nouvelle explication de la pathogénèse de l'exophthalmie qui accompagne la maladie de Graves-Basedow. Il pense qu'il s'agit d'une dysfonction pituitaire associée à une déficience thyroide.

Chez les animaux thyroidectomizés les injections d'extrait du lobe anterieur de l'hypophyse causent l'exophthalmie plus rapidement et plus sévèrement que chez les animaux normaux.

La thyrotoxine n'accélère pas la production de l'exophthalmie, mais, au contraire, retarde son dévelopement chez les animaux normaux et thyroidectomizés. Le même effet protecteur est troubé dans l'administration d'iodures.

L'auteur dénie que l'exophthalmie se soit jamais produite chez l'homme par 'administration de thyroide dessèchée ou de thyroxine. L'extrait pituitaire ne produit pas l'exophthalmie si l'exérèse bilatérale du sympathique cervical a été faite. L'insuffisance thyroide relative ou absolue serait la condition sine qua non pour la production de l'exophthalmie s'il y a suractivité du lobe antérieur de l'hypophyse.

La rareté de l'exophthalmie dans le myxédème et le crétinisme est due à l'insuffisance de la fonction des gonades. Chez les animaux d'expérimentation la castration empêche le dévelopement de l'exophthalmie.

Mais le rapport des bons effets sur le retardement du dévelopement de l'exophthalmie qui serait produit par l'administration d'estrine est paradoxal. Du coté clinique l'auteur montre que la thyroidectomie partielle dans la maladie de Graves-Basedow aggrave spécialement l'exophthalmie associée qui, d'autre part, s'améliore avec l'administration de thyroide dessèchée et d'iodures.

L'auteur soutient que la litérature montre que durant les quinze dernières années l'emploi prophylactique de l'iode et l'administration pré-opérative de préparations iodées ont diminué l'incidence de l'exophthalmie. Une perturbation du métabolisme du calcium et du phosphore est associée à la dysfonction pituitaire et thyroidienne pour la production de l'exophthalmie.

THE PRESENT STATUS OF ANALEPTICS IN ANESTHESIA

BERNARD B. RAGINSKY, M.D., C.M., F.I.C.A.
MONTREAL, CANADA

A TRUE evaluation of analeptics, that is, restorative drugs or agents, cannot be attempted without examining the causes which lead up to the emergencies requiring their use. Every anesthesia involves a certain risk. To make this risk as small as possible is the responsibility of the anesthetist. He must know the evaluation of the patients risk, select the anesthetic agent best suited for the case, maintain the proper level of anesthesia at all times and be prepared for any and all emergencies that may occur during or after the anesthesia. Above all, he must maintain unceasing vigilance while the patient is unconscious.

The evaluation of the surgical and anesthetic risk is one of the most important elements in the determination of the type of anesthetic to be used and the analeptic most suitable for that particular patient and anesthetic, should the need for its use arise during or after operation. The judicious employment of suitable restorative drugs or agents before operation in moderate or poor surgical risks reduces considerably the chance of untoward reactions later on. The circulatory and respiratory depression for which analeptics are most commonly used is not always due to the anesthetic alone but is often caused or hastened by operative interference producing "surgical shock" due to loss of blood and trauma. To help avoid this contingency, the following eight factors should be taken into consideration and preoperative analeptics employed.

(1) *The psychic state.* A severely depressed psychic state and a definite premonition of death augurs ill for recovery from anesthesia. Pre- and post-operative psychotherapy in these cases may be considered a valuable analeptic.

(2) *General debility and weakness as in prolonged invalidism.* Yandell Henderson (1) has shown that where muscle tonus is decreased as in general debility or deep anesthesia, the venous return is not adequate for the efficient function of the heart. In extreme cases it leads to complete cardic arrest, not from damage to the heart primarily but due to the lack of enough blood in the chambers of the heart. This condition may be ameliorated by the administration of comparatively large doses of strychnine. (2).

(3) *Lowered vital capacity.* Vital capacity varies directly with cardic efficiency (3) (4) and is lessened by emphysema, pulmonary tuberculosis, and other inflammations of the lung parenchyma and of the pleurae. The closer the vital capacity approximates the tidal air, the graver the risk (5). Several of the inhalation anesthetics tend to displace oxygen in the respiratory tract, while rectal, intravenous, and spinal anesthesia frequently diminish tidal respiratory volume to the point of producing varying degrees of anoxemia. A careful choice of an anesthetic or a combination of them, together with the use of moderate doses of such analeptics as Coramine and Metrazol will aid considerably in the prevention of respiratory and cardic failure.

(4) *Anaemia.* Since even as little as half an hour's administration of the usual inhalation anesthetics produce a significant reduction in the oxygen carrying capacity of the blood (6), any degree of anaemia from whatever cause is a danger signal. In these cases the analeptic of choice is tranfusion perferably several

hours or a day before operation rather than immediately beforehand. The importance of treatment of this condition before operation cannot be overestimated.

(5) *The cardiovascular system.* The cardiovascular signs of death are often mistaken for the primary cause whereas "surgical shock", post-operative obstruction of the bowel, haemorrhage, asphyxia, or poisoning from the anesthetic itself may be the real primary cause. Coronary lesions, angina pectoris, congestive heart failure, syphilitic aortitis, and marked arteriosclerosis carry a high operative mortality (7) (8) (9) (10) (11) (12) (13). Rest, diet, digitalis, and those measures usually used for the treatment of these conditions are the best preoperative analeptics. The indiscriminate use of adrenaline and ephedrine is to be avoided. Valvular heart disease, auricular fibrillation and tachycardia if well compensated do not add appreciably to the anesthetic risk (7).

(6) *Hepatic insufficiency. Risk of* hepatic failure may be minimized by the administration of large amounts of carbohydrates in order to build up the glycogen reserve (14). Transfusions and calcium gluconate reduce the bleeding time and the likelihood of haemorrhage (15).

(7) *Diabetes.* Early well treated diabetics do not influence the surgical risk unduly, but if the diabetes is of more than five years duration, arteriosclerosis is probably present. If gall stones or gangrene co-exist, there is almost surely coronary disease also (16) (17) (18). Since glycogen is everything to the diabetic especially when in coma, he should receive an adequate diet of carbohydrates and sufficient insulin if necessary to keep the urine surgar-free and if possible to hold the blood sugar below 0.150 mg.%. Too little insulin is much better than too much.

(8) *Renal insufficiency.* Certain anesthetics impair kidney function, others depend largely on the kidneys for their passage from the body (19). Administration of alkalis and maintaining the urinary output above 1500 cc. in chronic nephritics and choosing an anesthetic not excreted by the kidneys may improve the outcome in these very poor risks, but very little may be expected from the exhibition of the usual cardio-respiratory analeptics.

We now come to the depressant effects of the anesthetics themselves and the newer drugs antagonistic to their toxic actions. With the introduction, during the past decade, of avertin, cyclopropane, vinyl ether, the barbiturates and the new methods of administration such as rectal, intravenous, and basal, the depressive effects are sometimes greater than desirable. The factor of individual susceptibility or sensitivity cannot be accounted for wholly and some antagonistic drug may have to be resorted to in overcoming these occasional depressive states. These drugs differ in the mechanism by which stimulation is obtained. Strychnine, for example, stimulates the nervous system, while digitalis stimulates the heart muscle directly and also indirectly through the vagus; caffein acts upon the higher thought centres; epinephrine or adrenaline stimulates the sympathetic nervous system; ephedrine stimulates the central nervous system in general and causes arteriolar constriction (20) (21); carbon dioxide acts on the respiratory centre and picrotoxin, which is now being prepared in a purer form, not only stimulates the medulla but has even a greater predilection for the higher centres. Metrazol, which was known as Cardiazol before its acceptance by the Council on Pharmacy and Chemistry, is a very effective stimulant of the cerebral cortex and is active even after the carotid sinus has been denervated. Differences of opinion exist as to its action on the circulatory mechanism and its characteristic action complex (25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38). Coramine, a nicotine derivitive, acting on the respir-

atory centre depends for its stimulation of the cerebral cortex upon an active carotid sinus reflex (39, 40, 41, 42, 43, 44, 45, 46, 47, 48).

Of the analeptics mentioned, some have fallen into comparative disuse for various reasons. Strychnine does not act quickly enough. The stimulation produced by caffein is rather mild and is offset somewhat by its vasodilatory action. Digitalis, when given alone, acts too slowly for an emergency even when administered intravenously. The action of adrenaline is too evanescent and may cause further cardiac damage when used to counteract the depressant effects of such anesthetics as avertin (22). Ephedrine, to be effectual, must be used in rather large doses and is contraindicated wherever there is myocardial disease present. More recent work with smaller doses of this drug in conjunction with the more effective analeptics shows considerable promise.

Since all anesthetics and hypnotics do not act upon the nervous system in the same way, some analeptics are more effectual antagonists to certain anesthetics than others. While this problem has not been worked out completely as yet, considerable work, both experimental and clinical, has been done in the past few years to facilitate the choice of analeptics by the anesthetist.

Although known for more than a century, Picrotoxin has only recently been standardized and made available for clinical study. It has been found to counteract the effect of chloral hydrate, sodium bromate and more recently it was found to be the drug of choice against barbiturate poisoning (49). Rovenstine and his co-workers demonstrated it to be more effective than Metrazol, Coramine, or Caffein in countreacting evipal narcosis in the dog.

Metrazol is more effective on the depressed than on the normal functioning respiratory centre. The action is rapid and characterized by an increase in depth rather than rate of respiration, but the margin of safety is comparatively small. In rare cases, over-dosage results in convulsions. It has been found especially useful in respiratory arrest from morphine poisoning and is a very satisfactory antidote to intravenous injections of evipal and pentothal. Surgical shock following trauma or exposure have not been materially benefitted by this medication.

The margin of safety with Coramine is great. Its effect upon hypnotic and anesthetic depression is similar to that of Metrazol but less marked. Its efficiency in barbiturate depression is impaired.

In comparing these analeptics clinically, Rovenstine and Burstein found that the respiratory effects of Metrazol exceeded those of picrotoxin or coramine in both rapidity and degree of action, but the effects from picrotoxin seemed more prolonged. Metrazol definitely produced more active cerebral stimulation and circulatory improvement than the others.

The analeptics mentioned may be administered intravenously, intramuscularly, or subcutaneously. The dose and frequency of administration must depend upon the effects of each injection. No better results are secured from one single large dose than from repeated smaller ones. The dose of picrotoxin has not been determined satisfactorily, though Rovenstine believes that six mg. given preferably in divided doses is safe (50). Coramine can be given intravenously in doses ranging as high as 10 to 15 cc. at one time or by repeating smaller doses at five to ten minute intervals as required. As much as twenty cc. have been given in one hour and twenty to thirty cc. in two hours (23). Doses of five cc. and over, given intravenously, should be administered slowly to avoid the production of yawning, cough, vomiting or even trismus and generalized spasms. If convulsions do occur, which are rare, they can be controlled easily with ether. The dose of

Metrazol must be watched more carefully. One to five cc. are administered intravenously or intramuscularly and repeated in five minutes if the desired effect is not evident.

Circulatory collapse occurring during spinal anesthesia has been treated with moderate success by the subcutaneous or intramuscular injection of one to two cc. of ephedrine. A more satisfactory and more accurate method has just been described (24) using an intravenous infusion of one grain of ephedrine hydrochloride in one to two hundred cubic centimeters of saline just after the spinal anesthetic has been started. The rate of infusion is altered to meet the demands as recorded by the blood pressure readings.

Carbon dioxide is administered in a five to seven per cent mixture in oxygen to stimulate the respiratory centre.

Depression following *therapeutic* doses of morphine, avertin, and the volatile anesthetics is effectually treated by analeptics. The effectiveness depends upon the degree of depression and the time it has existed. The more profound the depression, the less satisfactory the response.

Artificial respiration is the only proven effective resuscitative measure to combat lethal doses of any hypnotic or anesthetic and it is more effective when used in conjunction with the analeptics mentioned, since severe circulatory depression with loss of peripheral vascular tonus has not been counteracted successfully by any analeptic used alone.

Since, in extreme respiratory and circulatory failure, no single adequate analeptic has yet been found, the impressive analeptic possibilities of a synergistic combination of pituitary extract (posterior lobe) and ephedrine as shown recently by Melville at McGill University (21), suggest a solution to this need. In closely controlled experiments on dogs, he has demonstrated conclusively the ability of this combination to restore blood pressure and respiration with complete recovery from general collapse in dogs shocked by the prolonged intravenous injection of histamine in lethal doses. Due to the synergistic action of this combination, the small dose used is more effective than twice the individual quantities of these drugs. The effects produced are most likely due to the arteriolar constriction through ephedrine and capillary constriction through the pituitary extract. Added to this are the prolonged effects of ephedrine upon the heart and circulation and stimulation of the central nervous system in general. These factors all play a rôle in the complete restitution of the shocked animal. While some clinical investigation has been carried out along these lines by Wesley Bourne, sufficient evidence has not been collected at this time to warrant its indiscriminate use. It would seem, however, that this type of combination with ephedrine may be the answer to the need of analeptics efficient in the presence of extreme respiratory and circulatory failure with loss of peripheral vascular tonus.

Research in the field of analeptics has advanced considerably in the past decade. New analeptics and new methods of administration have been found and their mode of action studied from the point of view of finding a specific antagonistic drug for each type of depressant, but much more still remains to be accomplished.

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DISCUSSION

By E. A. Rovenstine, M.D., Professor of Anesthesia, New York University College of Medicine, Director, Division of Anesthesia, Bellevue Hospital, New York City.

Members of the International College of Surgeons and guests:

Dr. Raginsky's instructive presentation of the present status of analeptics in anesthesia is particularly interesting at the present time when so many prepara-

tions are being recommended to the profession for relieving untoward reactions from sedative, hypnotic and anesthetic drugs. It has followed that the claims for clinical efficiency of many such preparations have been over-enthusiastic, based merely upon clinical impressions and without adequate investigation. For the most part, these analeptics have been introduced empirically and lack scientific evaluation to establish a rational basis for their use. Dr. Raginsky has discussed the status of analeptics very well and I can do little more than express my agreement to emphasize his statements.

It may be of interest to briefly bring to your attention a very pertinent use for one drug ordinarily classified as an analeptic, namely picrotoxin. This preparation has long since been demonstrated as useful in the treatment of intoxication of laboratory animals with derivatives of barbituric acid. With the increased use of barbiturates in clinical medicine, there have been presented an increasing number of occasions where patients have received an overdose and not infrequently a fatal dose of these drugs. That picrotoxin may be of decided benefit in the treatment of poisoning from the various barbiturates has been demonstrated in the Bellevue Hospital emergency and ward services. Several patients who have received or taken with suicidal intent much more than the fatal dose of a barbiturate, have been restored to normal. A detailed report of this use for picrotoxin is soon to be published. In brief, it recommends that picrotoxin be given at the rate of one milligram per minute, by way of an infusion tube carrying 5% glucose or sucrose solution, until an effect is observed. This effect, a toxic manifestation, is evident with muscle twitchings usually beginning about the mouth. The patients breathe more rapidly and the minute volume respiratory exchange is increased. They frequently respond to painful stimuli. Picrotoxin is then given intramuscularly in 3 mgm. doses in an attempt to maintain the stimulation. If the patient returns to a profound comatose state, the intravenous injection is repeated. This procedure is carried on until enough barbiturate is eliminated to permit the return of consciousness. Other measures for treatment are, of course, not neglected. I refer to tracheal intubation for the relief or prevention of pulmonary edema and to maintain oxygenation and artificial respiration when indicated. Catheterization, gastric lavage, maintenance of body temperature, diuretics, etc., are also necessary. The results with picrotoxin combined with the treatment ordinarily given have been far more satisfactory than when picrotoxin was omitted from the regime or another analeptic employed. In fact the results to date have been extremely optimistic and have removed for us many of the fears for a fatal outcome in a large percentage of the patients needing such treatment.

RIASSUNTO

L'autore ha fatto una chiara esposizione dei stati depressivi dei centri vasomotori e respiratori che complicano la immediata convalescenza dall' anestesia e dai vari gradi di shock associati al decorso post-operatorio di gravi interventi chiururgici. Ha preso in considerazione i fattori psichici; la debilita' generale; l'angio-ipotonia; l'invalidismo prolungato; fattori di subossidazione; anemia; lesioni cardio-vascolari; insufficienze epetiche; diabete; ed insufficienze renali.

L'autore ha cercato di assegnare ad ogni medicamento l'azione preponderante d'aspettarsi in questi stati urgenti con l'intenzione di facilitarne la scelta. L'autore usa la strignina principalmente per l'azione stimolante su tutto il sistema nervoso; la digitale per l'effetto immediato sul muscolo cardiaco; l'adrenalina e l'efedrina principalmente per l'effetto vaso-costrittore; l'inalazione di anidride carbonica; e l'iniezione di picrotossina per stimolare il centro respiratorio.

L'autore mette in evidenza la differenza di selezione dei vari anestetici e ipnotici sul sistema nervoso e la necessita' di scegliere in ogni caso gli analettici direttamente indicati per l'effetto antagonista. L'autore ha alto apprezzamento per l'azione della picrotossina che ritiene superiore a tutti gli altri antagonisti nei stati depressivi, causati della serie barbiturica e ritiene la picrotossina superiore in questi casi al Metrazol ed alla Coramina, mentre ritiene il Metrazol di superiore azione nella depressione respiratoria causata dalla morfina. Nel collasso circolatorio complicante la rachianestesia, l'autore preferisce le iniezioni intra-muscolari di efedrina. Usa anche sei centigrammi di efedrina in 200 cc. di soluzione salina per via endovenosa. Subito dopo l'inizio della rachianestesia. In questa forma di anestesia si serve di inalazioni di 5% di anidride carbonica in 95% ossigeno per mantenere lo stimolo del centro respiratorio.

RESUMEN

El autor expuso claramente los estados depresivos de los centros vasomotores y respiratorios que complican la convalecencia inmediata de la anestesia y los varios grados de choque que se asocian al período postoperatorio de intervenciones quirúrgicas graves. Tomó en consideración los factores psíquicos, la debilidad general, la angiohipotonía, el invalidismo prolongado, los factores de suboxidación, anemia, lesiones cariovasculares, insuficiencia hepática o renal y diabetes.

El autor senaló la acción preponderante que se puede esperar de cada medicamento en estos estados urgentes con el fin de facilitar la elección apropiada del medicamento. Usa la estricnina principalmente por su acción estimulante sobre todo el sistema nervioso, la digital ina por su efecto inmediato sobre el músculo cardíaco, la epinefrina y la efedrina principalmente por su efecto vasoconstrictor y las inhalaciones de anhídrido carbónico en oxígeno y las inyecciones de picrotoxina para estimular el centro respiratorio. El autor senala la amplia selección de los varios anestésicos e hipnóticos que tienen acción sobre el sistema nervioso y la necesidad de escoger, en cada caso, los analépticos que están indicados directamente por su efecto antagonista. Sostiene que la acción de la picrotoxina es superior a la de cualquier otro de los antagonistas que se administran en los estados depresivos causados por hipnóticos de la serie barbitúrica. La picrotoxina es superior en estos casos al Metrazol y la Coramina. El Metrazol tiene una acción superior en la depresión respiratoria causada por la morfina. En el colapso circulatorio que complica la raquianestesia, el autor prefiere las inyecciones intramusculares de efedrina. Administra, por lo común, una inyección intravenosa de seis centigramos de efedrina en 200 cc. de solución salina, poco después del comienzo de la raquianestesia. En esta forma de anesthesia, el autor administra a los pacientes inhalaciones de una mezcla de 5 por ciento de anhídrido carbónico y 95 por ciento de oxígeno para mantener el estímulo del centro respiratorio.

RÉSUMÉ

L'auteur a présenté une exposition claire des états dépressifs des centres vasomoteurs et respiratoires qui compliquent la convalescence immédiate de l'anesthésie et des différents degrés de shock associés au cours postopératoire d'interventions chirurgicales sérieuses. Il a pris en considération les facteurs psychiques, la débilité générale, l'angiohypotonie, l'invalidisme prolongé, les facteurs de sousoxidation, l'anémie, les lésions cardiovasculares, les insuffisances hépatique et rénale et le diabète.

L'auteur a essayé d'assigner à chaque médicament l'action prépondérante qui peut s'attendre dans ces états urgents avec l'intention d'en faciliter le choix. Il emploie la strychnine principalement pour son action stimulante sur tout le

système nerveux; la digitale pour son effet immédiat sur le muscle cardiaque; l'adrénaline et l'ephédrine spécialement pour leur effet vasoconstricteur; l'inhalation d'anhydride carbonique et l'injection de picrotoxine pour stimuler le centre respiratoire. Il discute le grand choix des différents anesthétiques et hypnotiques qui agissent sur le système nerveux et la nécessité de choisir dans chaque cas les analeptiques directement indiqués pour leur effet antagoniste. Il a grande estime pour l'action de la picrotoxine qu'il pense supérieure à tous les autres antagonistes dans les états dépressifs causés par la série barbiturique et dans ces cas il considère la picrotoxine supérieure au métrazol et à la coramine, quoiqu'il pense que le métrazol a une action meilleure dans la dépression respiratoire causée par la morphine. Dans le collapse circulatoire compliquant l'anesthésie spinale il préfère les injections intramusculaires d'ephédrine. Il emploie aussi 6 centigrammes d'ephédrine dans 200 cc. de sérum physiologeque en injection intraveineuse immédiatement après le commencement de l'anesthésie spinale. Dans cette forme d'anesthésie il emploie l'inhalation de 5 pour cent d'anhydride carbonique dans 95 pour cent d'oxygene pour maintenir la stimulation du centre respiratoire.

ZUSAMMENFASSUNG

Der Verfasser hat eine deutliche Erklärung gegeben für die depressiven Zustände der vasomotorischen und respiratorischen Zentren, welche die unmittelbare Erholung von der Narkose erschweren, und für die verschiedenen Grade des Schocks, welche den postoperativen Verlauf von schweren chirurgischen Operationen complizieren. Er berücksichtigt die psychischen Factoren, allgemeine Schwäche, Angiohypotonia, lange Invalidität, Suboxidationsfactoren, Anämie, Cardiovasculäre Defekte, hepatische und renale Insuffizienz und Diabetes.

Mit der Absicht, die rechte Wahl zu erleichtern, hat er versucht, jedem Medikament seine hauptsächliche Wirkung zuzuweisen, welche in diesen gefährlichen Zuständen von ihm erwartet werden kann. Er gebraucht Strychnin hauptsächlich wegen seiner stimulierenden Wirkung auf das ganze Nervensystem, Digitalis wegen seines direkten Einflusses auf den Herzmuskel Adrenalin und Ephedrin hauptsächlich wegen ihrer vasoconstrictorischen Wirkung Einatmung von Kohlensäure und Einspritzung von Picrotoxin, um das respiratorische Zentrum anzuregen. Er zeigt die elective Wirkung der verschiedenen Anästhetika und Hypnotika auf das Nervensystem und die Notwendigkeit, in jedem Falle die Analeptika auszuwählen, welche durch ihre antagonistische Wirkung direkt angezeigt sind. Er schreibt Picrotoxin eine grosse Wirkung zu und glaubt, dass diese allen anderen Antagonisten überlegen ist in depressiven Zuständen, welche durch Barbiturate hervorgerufen werden; er glaubt, dass Picrotoxin in diesen Fällen besser ist als Cardiazol und Coramin, dass aber Cardiazol eine bessere Wirkung hat in respiratorischer Depression, welche von Morphin verursacht ist. In Kreislaufkollaps, welcher in Rückenmarksnarkose auftritt, gibt er intramuskulären Ephedrin injektionen den Vorzug. Er gebraucht auch 60 mg. Ephedrin in 200 cc. physiologischer Kochsalzlösung, welche er direkt nach Beginn der Rückenmarksnarkose intravenös injiziert. In dieser Narkoseform gebraucht er die Einatmung von 5 procent Kohlendioxyd in 95 prozent Sauerstoff, um die Stimulation des Atmungszentrums aufrechtzuhalten.

SYPHILIS COMPLICATING PREGNANCY

P. BROOKE BLAND, M.D. AND A. E. RAKOFF, M.D.
From the Department of Obstetrics, Jefferson Medical College Hospital
PHILADELPHIA, PENNSYLVANIA

IN the medical literature of the world no single disease stands out more conspicuously than syphilis; and to no other during the past four centuries has there been devoted more literary consideration.

Notwithstanding ceaseless investigation and never ending study, the actual origin of syphilis remains clouded in mystery.

It does not seem illogical, however, to assume that it may be the antiquarian of all infectious diseases and nearly as old as the human family itself.

Had the sheperd of the Italian Hills and the Sage of Lago Garda, Girolamo Fracastoro, commonly called Fracastorius, been natives of Egypt, probably the name of the disease as well as its celebrated poem would be part of ancient and not medieval literature.

(The poem, Syphilis Sive Morbus Gallicus was written in 1530.)

Medical historians in general refer to that ambitiously inclined young Monarch of France, Charles VIII, who in 1494 invaded Italy and in the following May peremptorily took possession of one of the most attractive and desirable kingdoms of the Peninsula, Naples.

It is widely conceded that following this oft repeated historical episode that a violently destructive disease, hitherto not properly recognized, spread rapidly throughout Europe and to all parts of the habitable globe.

While the chief actor in the dramatic conquest himself possibly escaped the infection, a successor who ascended the throne twenty years later, Francis the First, contracted the disease from which he finally succumbed in 1547, at the age of 53.

Francis was not the only member of royalty to become a victim of the disease. Many of his contemporaries, including the celebrated occupant of the Throne of Great Britain, Henry VIII, became infected.

Following the conquest of the Neopolitan Kingdom, in 1495, no section of the earth has been free of the disease. New cases, totaling millions, arise perennially and in the United States alone more than 600,000 cases falling in this category occur each year. It is believed that in America, as we shall point out later, the minimum incidence reaches nearly seven hundred thousand new cases annually.

Probably these figures represent only a fraction of the aggregate number of new infections, because it is believed that still other thousands occur which are not reported.

In the United States as well as in all other countries, there is not a medical institution without one or more patients on register or in residence and in certain special institutions the patients may be listed by the score.

As a morbid entity, it probably outranks all others and as a medium of destruction of men, women, children and the unborn, it stands in the foremost rank.

As a grave complication of pregnancy with its tragic sequelae it has long been recognized, but only in very recent years have certain former concepts, as for example, the Laws of Colles' and Profeta, as well as the etiological relationship of

the infection to abortion, been found to be wholly erroneous.

It remains, however, one of the chief factors in the causation of fetal death in late pregnancy and in neo-natal mortality, but as a cause of early death of the ovum or abortion, it is not often culpable, as formerly believed and taught.

While the history of syphilis is of consuming interest, of far more interest and importance is its prevention, especially in the generations unborn.

In very recent years the phenomenal results following the institution of antisyphilitic therapy during pregnancy form one of the most illuminating chapters in preventive medicine.

Since obstetrics as a major division of medical science is becoming devoted more and more to prevention, it is clear that tremendous accomplishments may be wrought by prophylactic means.

Formerly, syphilis stood in the foremost rank as a cause of fetal death, but in numerous well-regulated maternities, it is now listed only as an occasional factor etiologically in ante and neonatal mortality. Apart from the amazing reduction in the syphilitic still-born, it is now definitely known that not only may countless babies be saved, but probably still more important saved from becoming congenitally diseased.

According to Moore (1) congenital syphilis is almost as amenable to prevention as is smallpox. This author believes the disease may be eliminated completely or nearly so by adoption of two simple expedients: First, the routine employment of diagnostic blood studies in all pregnant women and, second, adequate treatment of all infected patients during pregnancy.

For the expectant parent, the practice of these measures may mean the difference between a childless marriage or one blighted by defective offspring and normal uncontaminated babies.

When adequately applied, these simple resources become the most effective means not only of improving posterity, but in gradually eliminating the disease itself.

To prevent transmission of the infection from parent to offspring must be regarded of fundamental importance in control of the disease.

Incidence: Although the actual incidence of syphilis is extremely difficult to determine, investigations conducted in various parts of the world disclose that it is amazingly high.

With the establishment of routine serological studies the revelations were so amazing that many writers assumed changes in the blood due to pregnancy might lead to a nonspecific positive reaction.

Statistics collected by Ingraham and Kahler (2), from obstetric clinics in different parts of the world, indicate that the general incidence falls somewhere between five and ten per cent. In negro patients it is particularly high and ranges around fifteen per cent.

In the maternity hospitals of the United States, the recorded figures show a wide variation, ranging from 34, as reported by Bartholomew, of Atlanta, Georgia, to 1.2 per cent as reported by Fowler, of the University of Oklahoma.

In a study of the different ethnological groups in the City of Philadelphia, there was observed a tremendously wide variation in the incidence of the disease.

Recently a survey regarding the frequency of syphilis complicating pregnancy, both in public and private practice, was conducted by the American Social Hygiene Association (3). Seventy-four obstetric clinics in reporting for white individuals only, embracing a total of 62,516, recorded 3,783, or approximately 6 per cent, as serologically positive. In eleven clinics the status of the negro patients alone was investigated. In a group of 1,708 pregnant women, 308 or 18 per cent were Wassermann positive. This study indicates the disease is three

times more frequent in colored than in white women.

In a series of reports presented by 59 other obstetric clinics, including both white and negro patients, the incidence of infection, however, in the latter was relatively low. In 44,855 patients studied, 2,460 or 5.5 per cent were positive serologically.

To a questionnaire submitted to a group of 250 obstetricians in various parts of America, there were 37 replies.

The incidence reported ranged from nil to 3.5 per cent, and in more than one-half it was simply recorded as "one per cent or more." Papers of this sort obviously are not only misleading, but meaningless.

In this connection it may be of interest to refer to the study conducted in Washington, in December, 1936, by the Committee on Venereal Disease Control (4). It was recorded by the Conference as highly probable that there is in the United States an annual minimum incidence of 681,000 new cases.

The incidence of all forms of syphilis is believed to range between five and ten per cent.

The widespread nature of syphilis becomes magnified markedly when it is realized that not only does each year usher in a new array of syphilitic women for management, but that every patient, regardless of the extent of treatment previously received, will require special therapeutic care during each succeeding pregnancy in order to assure the birth of a non-syphilitic baby.

Recently, the Journal of the American Medical Association (5) in discussing the problem editorially stated that success in the campaign to control syphilis can not be attained in a year or two, or even in five or ten years. Success, if it comes at all, is to be measured in the same long terms as in the campaign to control tuberculosis—a generation, two generations or more.

Diagnosis: As in the public health control of any infectious process the success attainable depends on the apprehension of its carriers, active and latent.

In syphilis this is both easy and difficult, easy because of the high percentage of cases readily diagnosed by laboratory means, difficult because of the latency of the infection in many instances, especially in pregnancy.

At the outset, one may state that any of the following factors may afford evidence sufficient to warrant a tentative or positive diagnosis and the institution of treatment in the pregnant individual:

a. The family history.
b. The personal medical history of both parents.
c. The previous obstetrical history.
d. The physical examination.
e. The serological investigation.
f. The dark field examination.

Nevertheless, frequent comment is made with respect to the apparent innocuousness of the infection in pregnant patients and according to Ingraham and Kahler, more than 70 per cent of the patients profess not only total ignorance of the source of the infection, but even any abnormality which might lead them to suspect the presence of the disease.

In 1926, 11 years ago, a special section was established in our Antenatal Clinic for the care of the venereally infected patients and we have been deeply impressed both by the relatively negative clinical histories and the physical examination.

By Moore (1), as well as many other observers, it is believed that about 30 per cent of all syphilis is latent in character and is only recognized by careful interrogation and positive serological reactions.

Formerly, it was assumed that in pregnancy the percentage of latency exceeded the foregoing figures.

A survey of the current literature reveals that this assumption is supported by some writers and opposed by others (6).

In a recent study of the clinical types of syphilis, Menninger and Kemp (7) re-

ported as a noteworthy finding a high percentage of latent—late-infection, especially in multigravidous patients.

However, the value of a thorough clinical investigation, both as regards the history and physical examination, can not be overstressed.

In a study conducted in the Johns Hopkins University (8), evidence suggesting the presence of the disease, it was learned, could be elucidated in 35 per cent of the patients.

With the present routine employment of Wassermann tests, the chief importance of suggestive clinical findings would apply to those individuals who are found serologically negative.

As the multigravity of patients increase, the obstetric history assumes greater diagnostic significance, because it is in this group that latent syphilis is most prevalent.

For instance, as so aptly stated by Mestchersky (9), "Often the only symptom of latent syphilis in a woman is her ability to give birth to syphilitic children."

It is now generally believed that the diagnostic value of the Wassermann test in routine clinical practice is most dependable.

Belding (10), for instance, in a study of 5,000 maternity patients, found definite clinical evidence of the disease in only 0.54 per cent, and suspicious or suggestive signs in an additional 1.24 per cent, whereas the Wassermann reaction was positive in 9.2 per cent.

Although nonspecific positive reactions as well as attenuating factors rendering serologic tests less positive during pregnancy have been mentioned by numerous observers, it is now believed that definitely positive Wassermann and Kahn reactions are as reliable in pregnancy as in the diagnosis of syphilis in general.

Treatment: With respect to the therapeutic management of syphilis complicating pregnancy, one may assert that its importance lies chiefly, first, in the prevention of fetal infection in the early half of gestation, and, second, the early active treatment of an already existing infection in the latter half.

Although we in our personal work as well as many other investigators seldom succeed in isolating the Treponema in placental tissue, it is, nevertheless, believed that the transmission of the organism is by the placental route and that this takes place about the fifth month of gestation.

Moreover, clinical observations have convincingly demonstrated that the administration of antisyphilitic agencies are rapidly transmitted through fetal circulation.

Experimental studies have shown, likewise, that arsenic, bismuth and other antisyphilitic preparations not only appear in the fetal blood and viscera, but are retained by the placenta and that the retention becomes cumulative following repeated injection.

In order to protray the transcendent value of the treatment of syphilis complicating pregnancy, reference may be made to the impressive results obtained in various clinics in the United States and elsewhere.

The investigation conducted by the Cooperative Clinical Group (11) shows that by adequate medication—defined as at least 10 injections of an arsenical preparation and 10 of a heavy metal—before the fifth month of gestation—living non-syphilitic babies may be predicted in 91 per cent of the cases.

Indeed, the chances of obtaining a live baby regardless of its serology is even higher and almost equal to a comparable group from non-syphilitic mothers.

Bill (12) in a study of 6,000 pregnant patients, reports that still-birth is four times more frequent in the syphilitic than in the non-syphilitic.

Pye-Smith (13) reports 71.9% live births in untreated syphilitics as compared with 91.8% in those adequately cared for therapeutically.

In observations made in the Obstetric Department of Johns Hopkins Hospital (1), it was found that 45.9 per cent of the babies were stillborn in a large group of non-treated patients, as compared with ten per cent properly cared for during pregnancy, and 6.9 per cent in a group treated before and immediately following impregnation.

In a large series of patients registered in our Antenatal Clinic in the Jefferson Medical College Hospital (14), the live birth rate was only 69 per cent in a group of untreated patients, while in another group with each patient receiving 6 or more injections, the rate was increased to 97.5 per cent. Moreover, in this group the neonatal death rate was markedly reduced, reaching only a percentage of 2.6.

A report of a large French Clinic (15) refers to 2,000 untreated syphilitic pregnant women with a child loss during pregnancy or shortly thereafter of almost 75 per cent.

Statistics of this character confirm the conviction of Moore (1), who claims that a syphilitic mother has only one chance in six of delivering a living uncontaminated baby. A non-infected mother, on the other hand, has three chances out of every four of delivering a normal child.

Generally speaking, it may be said that a live birth rate in excess of 90 per cent may be anticipated in syphilitic women properly managed therapeutically during pregnancy.

According to the Bureau of Vital Statistics there are born in America each year about 2,500,000 babies. A conservative estimate indicates that five per cent of these, or more than 100,000 are born of syphilitic mothers.

Patients falling in this group, if not treated antenatally, means that more than 30,000 babies will die of syphilitic infection. Furthermore, almost 70,000 will be classed with the congenital syphilitics and if these in turn are not treated, approximately 50,000 will in the first year or two after birth, while the major portion of the remaining 20,000 will develop signs of congenital infection.

Adequate treatment of the mothers, before or during pregnancy, would eliminate almost completely this bleak obstetric tragedy.

A great variety of drugs are now used in the treatment of antenatal syphilis, but the arsenicals are deservedly the most popular.

During the past few years arsenical therapy in syphilis complicating pregnancy has undergone marked evolution, but this mode of treatment has now become fairly well standardized.

The administration of drugs, in general, during pregnancy, however, must be undertaken with some degree of caution and this is especially true of intravenous medication.

Heretofore, even the ardent advocates of chemo-therapy believed the arephenamines were deleterious in pregnancy, first, because of their toxicity and second, because of the danger of inducing abortion.

Sauvage (17) to a very large extent overcame apprehension of this character when he reported treating 91 pregnant patients without a single untoward incident.

Following the introduction of a less toxic—though probably a less potent preparation—neoarsphenamine, an arsenical, was provided, which became the agent of choice in the treatment of syphilis during pregnancy.

Most syphilographers today express the conviction that not only does the pregnant patient withstand anti-syphilitic treatment well, but the incidence of reaction is lower than in the non-pregnant.

Nevertheless, it is generally conceded that the arsenicals should be used with caution. A dosage less than 0.6 grams is favored and most commonly the amount of the preparation administered varies from 0.3 to 0.5 grams, once weekly.

This precautionary attitude is in accord with the present conception that on the kidneys, and especially the liver, there is placed an extra burden during pregnancy and because, moreover, actual damage of these structures is a frequent accompaniment of pregnancy toxemia.

In toxic individuals, it is recommended, therefore, that arsenical medication be held in abeyance until the toxic process is controlled or subsides. This course is to be adopted because of the danger of arsenical hepatitis or even acute yellow atrophy. Several cases of this nature have been recorded.

Stokes (18) in warning the profession of the dangers of the antenatal treatment of syphilis said that our relative ignorance or indifference to its possible effects on the mother have been lost largely because of our interest in the unborn child.

The fear that the arsenicals might possibly provoke abortion has not only been found erroneous, but, as expressed by Schamberg and Wright (19) these preparations have unquestionably served to offset the feticidal influence of the Treponemata. Although syphilis is no longer regarded as a common cause of abortion, yet in a group of 63 syphilitic patients, who had two or more interruptions of early gestations previously, 59 per cent gave birth to apparently healthy living children following antisyphilitic treatment (20).

At present, it is generally agreed that the arseno-benzenes are superior to other types of antisyphilitic agencies in the treatment of syphilis in the antenatal period. This is especially evident in some of the earlier studies in which only a single drug was employed.

Sauvage (17), for instance, reports the birth of living infants in 92 per cent of patients treated with the arseno-benzenes, as compared with 66 per cent in a group treated intensively with mercury.

Gammeltoft (21), in a study of a large number of syphilitic women treated in the Clinic of the University of Copenhagen, reached similar conclusions.

With regard to the use of other drugs, we found neoarsphenemine far superior to acetylarsan in the treatment of patients in our clinic.

Although both drugs result in about 97 per cent of live births following six or more injections, a "check-up" by Coppolino (22) in our Pediatrical Department revealed that 15 per cent of the babies in the acetylarsen group were syphilitic, as compared to three per cent in the group receiving neoarsphenamine.

We have, also, been using in our clinic, as is the custom in many others, bismuth in the treatment of patients antenatally.

This investigation was undertaken partly because of the meager reports concerning its use and partly because of the conflicting opinions expressed in the literature.

Bismuth was first employed in pregnant women by Caboust (23) in 1923, one year after its introduction in the treatment of syphilis in general by Levaditi.

Numerous French workers (24, 25, 26) employed bismuth alone in the treatment of syphilis complicating pregnancy, but the results were not uniform and led, therefore, to conflicting opinions regarding the material as a protective medium for the fetus.

Zakon (27), of this country, from his observations, favors the use of bismuth salicylate, because from his experience the end results following its administration were equal to those obtained by arsphenemine.

In an investigation conducted in our clinic, only 26 or 76.5 per cent of a group of 34 patients treated with a preparation of bismuth left the hospital with apparently healthy children. Six babies were stillborn, one died neonatally and one had frank signs of syphilis.

It cannot be denied, however, that bismuth is of real value in the treatment of syphilis complicating pregnancy, es-

pecially when used in conjunction with an arsenical.

Following a series of arsenical injections, it affords a safe and convenient method of continuing antiluetic therapy. This alternative plan provides the patient with a temporary rest period from the arsenical injections.

Bismuth should be used simultaneously with the arsenicals in syphilitic women coming under observation particularly in the later weeks of pregnancy.

Combined and Alternate Treatment: It is now conceded that an arsenical plus a heavy metal provides the best ultimate results. The two methods of treatment now in use predominately are the alternate and the combined.

In the former, a course of injections, is given separately. In the latter, they are given together, the arsenical intravenously and the heavy metal intramuscularly.

The results following the alternate method of management, as reported by the Co-operative Clinical Group (12) show that 95 per cent of the women thus treated gave birth to apparently non-syphilitic children, as contrasted with 87 per cent receiving the combined method of treatment.

Following the combined method more babies may be born alive than following the alternative scheme, but the number of syphilitic children will be much greater . However, it is pointed out that the relatively poor results with the combined method may be explained on the ground that this technic is practiced in urgent cases, or in those patients registering in the last weeks of pregnancy.

That the employment of a heavy metal is more beneficial than continuous treatment with an equivalent amount of an arsenical is convincingly demonstrated by the investigation conducted by Turner and McKelvy (28). These observers found that when mercury or bismuth was given in addition to arsphenamine, the proportion of living children was higher (96.1 as compared with 90 per cent) and the incidence of syphilis much lower (6.5 as compared with 22 per cent) than when equivalent quantities of arsphenamine alone were administered.

The Time Factor: The duration of pregnancy extends, it is generally taught, over a period of 280 days and the institution of effective therapeutic means is governed, therefore, by the factor of time.

The reduction of fetal mortality following early medication is most striking. Not only will treatment established in the early weeks of pregnancy almost invariably save the life of the fetus, but will overcome almost completely the morbidity and mortality of congenital syphilis.

The launching of any campaign for syphilitic control should include the adoption of a standard of therapeutics with a view of not only obtaining a high percentage of live births, but of obtaining non-syphilitic babies as well.

In the co-operative clinical studies (12), the results reported are most impressive. In 385 mothers treated late in pregnancy, the number of syphilitic children born exceeded those treated in the early stage of gestation by almost 75 per cent (23.4 per cent as compared to 6.6 per cent).

It was learned, besides, that when adequate treatment was started early, only 4.9 per cent of the mothers gave birth to tainted children.

In a group of patients studied in our clinic, at Jefferson (14), the fetal mortality among those patients receiving no treatment was 30.8 per cent while those in whom treatment was started in the last four weeks of pregnancy showed a 20 per cent fetal mortality.

In another group in which treatment was started eight weeks before full term, the mortality was 3.2 per cent.

Another feature of importance is the protective influence of treatment prior to conception. This question is frequently discussed. Although the probability of a normal baby is favored by the adoption of

treatment prior to pregnancy, it has been learned that only adequate care during the prenatal period will assure the birth of a healthy child.

In the Department of Obstetrics of Johns Hopkins University (1) there were 54 per cent of live births in mothers who received no treatment at all. In patients receiving treatment previous to pregnancy, the live births totaled 81 per cent. In a series of patients treated during pregnancy only, the live births reached 90 per cent, and in a group treated prior to and during pregnancy, the rate extended to 93.1 per cent.

Here it may be of interest to mention that the studies made by the Co-operative Clinical Group (20) indicate that the serological examination of the mother during and after pregnancy is of some prognostic importance. For example, among 167 syphilitic women with a negative reaction during pregnancy, 81 per cent were delivered of apparently non-syphilitic babies, in contrast to 57 per cent of a group of 264 patients who showed a positive blood test.

In view of the foregoing, it is concluded that, although these data indicate that a negative reaction greatly increases the chance of non-syphilitic child, it is incumbent to recall that a negative test is in itself insufficient to predict the birth of living apparently non-contaminated children.

The important factors in the management of syphilis complicating pregnancy have been summarized by Stokes(18) as follows:

1. The recognition of the infection before the fifth month of gestation.

2. The treatment of every patient known to have had syphilis throughout every pregnancy, whether Wassermann negative or positive.

3. The administration in excess of 4 grams of neoarsphenamine in a total of at least 10 injections.

4. The administration, also of at least 10 injections of a bismuth compound.

5. The dependability chiefly on arsphenamine—begin and end with it.

6. The collection of cord blood for a Wassermann and a blood test of the baby on the tenth day post-partum.

7. The clinical observation of all babies for at least two years or more, if possible, following birth.

8. The study of the bones roentgenologically in cases of suspected syphilis shortly after birth, regardless of the results of the blood examination.

By following the methods herewith outlined, it has been convincingly demonstrated in public health campaigns to control syphilis, as conducted especially in the Scandanavian countries and in Great Britain (29), that antiluetic treatment has resulted in a marked reduction in the number of still-births and cases of congenital lues.

In Denmark, for instance, Wassermann tests are part of the routine study of all pregnant women in hospitals. In one of the large institutions of Denmark with more than 1800 deliveries annually, only from one to three cases of congenital syphilis are found.

It is clear that the treatment of syphilis complicating pregnancy must constitute an important feature of all campaigns for veneral disease control.

The committee formed for this purpose, in a recent publication (30) urged the serological examination of every patient as early as possible and preferably more than once during pregnancy. This course should be adopted in all prenatal programs.

The treatment of the indigent pregnant syphilitic women, the committee recommends, "should be administered in the veneral disease clinic, or in the prenatal clinic, depending upon the availability of

physicians trained in syphilolgy in the respective clinics".

CONCLUSIONS

1. Syphilis is the antiquarian of all infectious diseases and is probably as old as the human race itself.

2. Historically there is no convincive proof that it did not flourish in antiquity, nor is there any convincing evidence that it had a post-Columbian inaugural in Europe.

3. Since its recognition as a special entity in 1495, it perhaps has stood in the very front rank in the destruction of men, women, children and especially the unborn.

4. It is omnipresent and no section of the earth is free or immune, new cases probably reaching into the millions occur throughout the world annually and many hundred thousand new cases arise each year in America alone.

5. It is universally recognized as one of the most highly infectious diseases known and until recently no effective measures were instituted for its control.

6. Efforts are now, though somewhat tardy and feeble, being made by numerous agencies to curtail the incidence of the disease, but to be effective, public health regulatory measures must be applied as in the infectious diseases in general.

7. Obstetrics is now looked upon as one of the chief departments of preventive medicine and this is especially true with respect to the prevention of syphilis in posterity, the generations unborn.

8. To prevent the transmission of the disease antenatally, every expectant mother must be actively treated throughout gestation, for it is by this measure only that specific intrauterine fetal death can be prevented and the birth of the uncontaminated or healthy children assured.

DISCUSSION

Dr. Harbeck Halsted, New York, N. Y. This paper of Dr. Bland's is so carefully prepared and so comprehensive and yet accurate as to detail that it is impossible for me to enliven the discussion by disagreement and difficult to add anything of importance to his discussion or conclusions.

I wish to congratulate this Society in having such an important paper presented before it and Dr. Bland on being one of the first men in this country to start a syphilitic clinic in conjunction with his obstetric service.

The Sloane Hospital for Women with which I have been connected for a long time has a somewhat similar service, but we do the work in conjunction with the Departments of Dermatology and Pediatrics of Columbia University.

Our plan as to diagnosis, routine Wassermann tests, treatment and follow-up of mothers and babies is essentially the same as Dr. Bland's and I am very gratified to say our results are as good as his.

This paper should be widely read and his suggestions followed in detail.

I wish to thank you for allowing me to hear this paper and join in the discussion.

RIASSUNTO

L'autore considera la sifilide malattia di grande antichita'. Ritiene che non possediamo dati storici irrefutabili sull-introduzione della malattia in Europa dai reduci dalla spedizione di Cristoforo Colombo. L'Autore assegna alla sifilide il primo posto per gli effetti distruttivi come causa indiretta della mortalita' in tutte le eta' della vita ed ancora prima della nascita. La sifilide deve essere ritenuta tra le malattie di alta infettivita'.

L'ostetricia deve essere intesa non soltanto come specialita' ma anche come una branca della medicina precentiva con speciali compiti nel lavoro di profilassi e nella terapia per le generazioni future.

L'autore ritiene che la siero-reazione Wasserman e la siero-precipitazione Kahn debbono essere largamente usate durante il periode di gestazione e durante

il puerperio. Ogni neonato con segni sospetti di eredolue deve essere sottoposto alle reazioni siero-diagnostiche ed il clinico deve sottoporre i genitori ad interrogatorio probativo, consigliando all'uopo le indagini siero-diagnostiche prima di escludere la possibilita' dell-infezione.

RESUMEN

El autor considera la sífilis como una enfermedad muy antigua. Sostiene que no poseemos datos históricos seguros acerca de la introducción de la enfermedad en Europa por los exploradores que regresaron de la expedición con Cristóbal Colón. El autor atribuye a la sífilis el puesto más prominente, por sus efectos destructivos, como causa indirecta de la mortalidad en todas las edades de la vida y aún antes del nacimiento. La sífilis debe considerarse entre las enfermedades sumamente infecciosas.

La obstetricia debe entenderse no sólamente como una especialidad, sino también como un ramo de la medicina preventiva con actividades especiales en la prevención y tratamiento de la sífilis para impedirla en las generaciones futuras.

El autor sostiene que la reacción serológica de Wassermann y la reacción de precipitación serológica de Kahn deben practicarse en todas las madres, ya sea durante el embarazo o en el puerperio. En cualquier recién nacido que muestre signos sospechosos de sífilis congénita deben practicarse las reacciones serológicas diagnósticas y el médico debe someter a los padres del lactante a un interrogatorio cuidadoso y aconsejarles que se practiquen las reacciones serológicas diagnósticas, antes de excluir la possibilidad de la infección en el lactante.

RÉSUMÉ

L'auteur considère la syphilis comme une maladie de grande antiquité. Il pense que nous no possédons pas de preuves historiques irréfutables sur l'introduction de la maladie en Europe par les membres de l'expédition de Christophe Colomb. Par ses effets destructifs, la syphilis occupe le premier rang comme cause indirecte de la mortalité de tous les ages de la vie et aussi d'avant la naissance. La syphilis doit être considérée comme appartenant aux maladies de haute infectivité.

L'obstétrique doit être acceptée non seulement comme une spécialité mais encore comme une branche de la médecine préventive ayant des devoirs spéciaux dans la prophylaxie et la thérapie des générations futures.

L'auteur pense que la séroréaction de Wassermann et la séroprécipitation de Kahn doivent être usées profusément durant et après la gestation. Tout nouveau-né présentant des signes suspects de syphilis héréditaire doit être soumis aux réactions sérodiagnostiques et le médecin doit soumettre les parents à un interrogatoire confirmatif et recommander des investigations sérodiagnostiques avant d'exclure la possibilité d'infection.

ZUSAMMENFASSUNG

Der Verfasser betrachtet Syphilis als eine Krankheit von grosser Antiquität. Er ist der Ansicht, dass wir keine unwiderlegbaren historischen Angaben besitzen über die Einführung der Krankheit in Europa durch Mitglieder der Expedition von Christoph Columbus.

Wegen ihrer zerstörenden Wirkung räumt er der Syphilis den ersten Platz ein als indirekte Ursache der Sterblichkeit in allen Altersgruppen und auch in der pränatalen Sterblichkeit. Syphilis muss als eine Krankheit von grosser Infektivität betrachtet werden.

Die Geburtshilfe ist nicht nur eine Spezialität, sondern auch ein Zweig der preventiven Medizin mit besonderen Aufgaben in Prophylaxis und Behandlung zum Schutz für kommende Generationen.

Verfasser glaubt, dass Wassermann-

und Kahn-Reaktionen während der Schwangerschaft und des Wochenbettes angewandt werden sollten. Alle Neugeborenen, welche Anzeichen von angeborener Syphilis aufweisen, sollten der Serodiagnose unterworfen werden, und der Arzt sollte die Eltern befragen und serodiagnostische Untersuchungen anraten, ehe er die Möglichkeit einer syphilitischen Infektion ausschliesst.

THE SURGICAL TREATMENT OF TUMORS OF THE LUNG, MEDIASTINUM AND CHEST WALL

DRS. FRANK S. DOLLEY AND JOHN C. JONES
Cedars of Lebanon Hospital
LOS ANGELES, CALIFORNIA

IT can be truthfully stated that all tumors of the lung and mediastinum are malignant or will become so. Either they are from the beginning carcinomatous or sarcomatous, or they are primarily benign but undergo carcinomatous or sarcomatous change, or finally, they continue benign to the end but by steady increase in size eventually cause death through circulatory, respiratory or inflammatory complications. Pressure against mediastinal organs or lungs, to any one of which they may become so intimately adherent that removal is surgically impossible, renders them therefore actually malignant to the person who supports them.

Seven different kinds of thoracic neoplasms are described in this presentation, all successfully removed, with apparent complete recovery of the patients who formerly possessed them.

The symptoms of thoracic neoplasms are almost entirely due to pressure of the tumors upon neighboring organs, resulting in interference with the functions of these organs.

1. Pain develops if pressure occurs upon a nerve or nerves contiguous to the tumor. If the first thoracic nerve becomes involved, for instance, then pain is present at the base of the neck, and since this nerve aids in the formation of the lower brachial root, there is pain along the ulnar nerve trunk. The intercostals are the nerves most frequently affected so that pressure on one of them, even near the angle of the rib, may refer the pain to the region of the breast or perhaps to the parasternal region.

2. Dyspnea which is often a prominent symptom, is the result of mediastinal compression by a tumor within it or extensive lung collapse, or to a combination of both.

Hoarseness, stridor, brassy cough, irregularity of pulse, etc., all are the result of pressure, and their causes are self evident.

Diagnosis of a tumor, except a carcinoma deep within a secondary bronchus beyond bronchoscopic visualization, is usually not difficult. The actual sort of neoplasm that exists is seldom positively known before its surgical exposure.

The clinical history and physical examination often are suggestive. Fluoroscopic examination and X-ray films are of greatest value, except in early bronchogenic carcinoma when often they are essentially negative. Negative X-rays, however, must not halt the physician's consideration of lung cancer, for bronchoscopy is far the most dependable aid in establishing the absence or presence of bronchogenic carcinoma, and even this is not final since not rarely the carcinoma early in its symptomatic course lies deep within the lung and cannot be seen through the bronchoscope.

Often lipiodol to delineate the bronchial tree is of help.

Diagnostic pneumothorax is of great assistance sometimes:

(1) It enables one under the fluoroscope to ascertain whether the lung is free from the chest wall.

(2) Whether the suspected shadow changes in shape and location under air pressure.

(3) By means of a thoracoscope introduced between two ribs into the pneumo-

thorax cavity, one is often actually able to see the growth, particularly if it be from the chest wall, and to tentatively establish a diagnosis and the most advantageous surgical approach.

Irradiation when sarcoma or Hodgkins disease exists may rapidly melt away the shadow. It is seldom, indeed, that such growths would be surgically removable. Such patients would thus be spared operation. It should be emphasized, however, that if deep X-ray treatment is thought advisable and if the clinical and X-ray film improvement is not convincingly striking, further delay before attempting tumor removal is ill-advised. Scar tissue formation following X-ray may soon bind the structures surrounding the neoplasm so intimately to it that complete extirpation may be impossible. The patient should be told that if following radiation therapy, the reduction in the size of the tumor is not convincing, the attempt to remove surgically must not be postponed. Probably all intrathoracic malignant growths found at autopsy to have had a benign origin would have been amenable to successful surgical removel at sometime during the course of their development.

Each case will be presented by means of lantern slides as follows:
1. Complaint taking patient to his physician and symptoms elicited from patient, subjective and objective. 2. Xray before surgery. 3. A graphic drawing of chest showing surgical approach with brief description of operation itself. 4. Specimen. 5. Post-operative X-rays.

F. P., 36 Housewife. Non-productive cough, eight weeks, steadily getting worse. Occasional pain along course of 3rd., 4th. and 5th. right intercostals. Cough high-pitched but not brassy. Mass postero-lateral. Weight loss about 10 pounds. Operation described. Diagnosis: ganglioneuroma.

W. W., 43. For more than 12 years unexplained periods of afternoon temperature. Chronic cough. Daily raised little mucopurulent material. Always negative for tuberculosis. Tentative diagnosis, bronchiectasis right side. Sputum never blood streaked. Bronchoscopy showed mass at the main bronchus, right lower lobe, suggestive neoplasm. Biopsy, squamous-cell carcinoma. Operation described.

R. P., 13. Well until 6 months previous to admission to Hospital. First symptom shortness of breath on exertion. Somewhat later non-productive cough. Gradually dyspnea became marked. Cough continued non-productive but became brassy in character and almost constant. About three months before admission pain beneath manubrium developed and gradually became worse though never particularly severe. Operation described. Diagnosis: Teratoma.

E. S., 35. Nine years before, consulted family doctor on account of occasional pain in right lower chest. Diagnosed heart disease. Told her to stop tennis. Little change until six months ago since which time pain steadily became worse. X-rays. Operation described. Diagnosis: dermoid cyst.

I. I., In 1919 was said to have had lung abscess of left lower lobe followed by empyema, drained by rib resection at posterior axillary line. Has never felt able to work since. In 1920, hemoptysis which has recurred many times; on three occasions the bleeding nearly proved fatal. For 16 years, despite persistently negative sputum, was held to be tuberculosis and was so treated. Bronchoscopy negative. Operation described. Diagnosis: mixed tumor of bronchus.

R. W. Perfectly well except for several weeks conscious of dull pain in region of right breast and axilla. Suddenly awakened with extreme pain 3 o'clock in morning, right side. Morphine had little effect. Taken to hospital; later, in day 500 c.c. clear pleural effusion aspirated. Two days later, 1200 c.c. slightly bloody. Xrays showed shadow right side. Felt to be carcinoma of the lung. Referred to us for surgery. Tumor evidently posterior.

Bronchoscopy negative. Operation described. Diagnosis: osteochondroma.

C. S., 47. For several months had complained of pain in right shoulder and upper extremity, particularly in mesial half of forearm and 4th. and 5th. digits. There was no paralysis but the pain in shoulder and arm became so severe that patient was unable to sleep. He also noticed that he was unable to raise right eyelid. There had been eleven pounds loss in weight. Had been treated for neuritis. Despite negative chest examination film taken. Showed a shadow in the level of hilum on the right side upward to neck, approximately 5 cm. wide, continous with that of mediastinum. Definite Horner's syndrome with involvement apparently of first thoracic nerve before it entered lower brachial root.

Preoperative diagnosis: probable Pancoast's tumor or possible bronchogenic carcinoma involving portion right upper lobe, corresponding to so-called azygos lobe. Operation described. Diagnosis: fibro-myxoma.

In summation then, the following statements deserve particular emphasis.

(1) All intrathoracic neoplasms are or will become either intrinsically or mechanically malignant.

(2) Practically all carcinomatous or sarcomatous chest tumors that are found at autopsy to have had a benign origin, were at some time during their existence removable.

(3) If radiation is tried and its effect within four to six weeks is not satisfactorily beneficial, surgical exploration must not be delayed, for peripheral scar tissue secondary to X-ray treatment may soon render total extirpation impossible.

(4) And finally, the operative mortality is very low: the successes very high. In our series, including those just described, there have been sixteen consecutively successful cases.

RIASSUNTO

L'autore ritiene che tutti i tumori del polmone o del mediastino sono da ritenersi come potenzialmente maligni. Questi blastomi sono, fin dell-origine, carcinoma o sarcoma. Pochi sono benigni.

L'autore presenta sette tipi di neoplasmi estirpati. Nei carcinomi bronchiogenici, consiglia la Roentgen-terapia prima e dopo l'operazione. La tecnica operatoris fu dimostrata con apposite proiezioni.

RÉSUMÉ

Traitement chirurgical des tumeurs des poumons et de la paroi thoracique. Dr. Frank S. Dolley, et Dr. John Jones, Cedars of Lebanon Hospital, Los Angeles, California.

Les Auteurs pensent que toutes les tumeurs pulmonaires et mediastinales doivent être considéreés comme étant malignes. Dès le début, les blastomes sont le siége de changements carcinomateux ou sarcomateux. L'extirpation de sept tumeurs pulmonaires et mediastinales fut projeteé sur l'e'cran. Les Auteurs sont de l'avis que l'irradiation roentgenologique des tumeurs cancereuses d'origine bronchique doit préceder et suivre l'opération. Le tout fut illustré par des projections cinemato-graphiques très intéresantes.

ZUSAMMENFASSUNG

Chirurgische Behandlung der Geschwülste der Lungen, des Mediastinum und der Brustwand. Dr. Frank S. Dolley und Dr. John C. Jones, Cedars of Lebanon Hospital, Los Angeles, California. Die Verfasser glauben, dass potential alle Geschwülste der Lunge und des mediastium als maligne Geschwülste zu betrachten sind. Die Blastomata zeigen schon von den frühesten Stadien carcinomatöse oder sarcomatöse Eigenschaften. Nur selten sind diese benign. Die Verfasser stellten sieben Fälle von extirpierten Geschwülsten vor. In Fällen von bronchogener krebsiger Entartung werden Roentgenirradiatonen vor und nach der Operation von den Verfassern empfohlen. Der interessante Vortrag wurde von Lichtbildern und cinematographischen Filmen begleitet.

FUNDAMENTALS OF PTERYGIUM SURGERY

THEODORE J. DIMITRY, M.D.,* F.A.C.S., F.I.C.S.
NEW ORLEANS, LOUISIANA

HAS it ever occurred to you how confused we are as regards the pterygium? Authorities make diverse statements, not alone as concerns its pathogenesis, surgery, etc., but also differ as to the extent of our erudition on the subject. Some think the pterygium incomprehensible, and others, the one completed subject in medicine and surgery. Treigny and Coire, (in a Thesis, Paris, France, and Translation, Eye, Ear, Nose and Throat Monthly, year 1936), have this to say: "Since the most remote times, there are but few ocular affections that puzzle so much as does the pterygium." . . . . ."

"It is to the ophthalmologist an enigma, the solution of which, although apparently simple, baffles him completely." Contrast this with the views expressed in the American Encyclopedia of Ophthalmology, Page 10,445: "Through centuries the name only has remained constant, the etiology, anatomy, pathology and therapy having undergone various changes and revision until the present day, when *we, at least, think we understand the true nature of the condition.*"

A pterygium is a clearly evident growth and the patient comments upon it as an obvious defect. Though always in view, there is discord, in that some believe it to spring into existence, and others believe it to be as the result of long exposure to alkalies of the dry lifeless climates and requiring years to develop. The diagnosis is made only after it has advanced upon the cornea. That it originated or comes on where the head is seen, or proceeded from a distance towards the cornea, is a debateable point. Its slow development, though undisputable, is seldom cogitated upon, and when taken seriously, every effort is made to contravert the only scientific information in existance on the subject, *that of the teachings of Fuchs, who revealed, histologically, that "the pterygium process follows on a pinguecula" and does not originate on the cornea.*

Schulek, (Zur Etiodes Pter. Ungar Beitrag sur Aug., Vol. 1, 1895) "that the pinguecula is insufficient to explain everything."

Graefe, "that all pingueculae are not transformed into pterygia; it is only when the substances which brought on a pinguecula are active for a long time."

Salzmann, S., Grosso, Lipitzas, Trug, Valude, Fraenkel, E. Meyer, and Trapesontaian contradict Fuchs in different respects.

Lemoine and Valois — (Elements de Biomicroscopic Oculaire, Thesis, Paris, 1931). "The interpretation of the pinguecula explains nothing, not even one of the particulars of that mysterious affection."

Textbooks continue to describe the growth as told when Egypt was at its height, but neither then, nor now, defines it. The Greeks of older times told the story in the early days. Today, that word is replaced by paragraphs of words to convey the same information. Parsons': "The pterygium is a *peculiar* encroachment of the conjunctiva on the cornea. It is triangular in shape." The Egyptians described it as a "serpentiginous growth."

*From the Department of Ophthalmology, Louisiana State University Medical Center.

Berens': "A pterygium is a triangular fold of mucous membrane which extends from the conjunctiva of the eye ball to the cornea." The Greeks described it as "a growth shaped like a little wing." From the earliest period in history there has been accord on the observation that the pterygium growth is always at the palpebral apperture.

As to cause: The "dust devils" of Elliot in arid climates "dancing down the road" elect a particular tissue in the palpebral apperture for the growth i.e. the conjunctiva, and avoids the greater exposed cornea. Such a hypothesis merely repeats ancient teachings such as those based upon a belief that the disease is most prevalent in dusty hot climes and that the cornea is less easy to irritate. That irritants are responsible for provoking the growth is so plausable that any other theory that may be submitted is unacceptable. There are some who would even classify the disease as due to the type of work performed and that the women do not have it because of household duties. Venneman and others recite that it could be "truly attributed to profession."

The author has compiled ample information, 135,000 eye operations from large eye clinics throughout the nation, to a deduction that the surmises as regards irritants producing the growth are erroneous and a recognition that women have pterygia nearly as often as men. The statistical studies submitted are from reliable sources, hospitals under guidance of the American Medical Association and the American College of Surgeons and from confrérés, members of the College.

Consider for a moment the pterygium in the sections of dust storms as compared to such sections of verdure clad lands. The pterygium is at a minimum in the sections of dust storms and reaches a maximum in the sections with verdure clad lands.

Compare particular agents of different sections and select Louisiana as the prevalent diseased section. Your conclusion will be the same as the author's—Louisiana, the verdure clad State of the Nation, has largest percentage of pterygium and less irritants to excite such a growth.

The surgeons of the State Charity Hospital at New Orleans operate on women as frequently as upon those of the opposite sex.

The ultra violet rays are not responsible for the production of either the pinguecula or pterygium. This statement eminates from the studies of Beard, Professor of Biochemistry at the State University at New Orleans, Louisiana. He submitted rabbits to twenty-four hours of daily irradiation without noting the production of either pinguecula or pterygium. Yet in these same rabbits, sarcomas and carcinomas were produced about the eye.

Many regard the growth as of no importance and only after it invades the pupil, vision interfered with and permanent scar produced is an operation considered. Others, colleagues of eminence, state that it should not be touched fearful of exciting an exacerbation.

Celcus, at the time of Tiberius Caesar, had this to say, "That when cut the disease always recurs even when you have done all in your power to cure it." Tierney, 20th Century, adds, "not always, but often" and Shastid (1925) "concerning the pterygium operations, as now performed, I will simply say that, not infrequently the procedures are found miserably ineffective." "I have seen it develop to more than twice and three times its previous size after removal."

The recounting of this dilemma, as concerns such a small growth, could be prolonged ad infinitum, if necessary. Great as the confusion is as regards etiology, etc., the dilemma is far less by comparison when explanations for the surgical procedures are taken into consideration.

The surgery is not understood and the principles that govern surgery are com-

pletely ignored. Pathology and diseased carrying vessels are transplanted as a means for a cure and then explanation is sought for recurrences. And yet, how are 75% cures obtained when these principles are so flagrantly ignored. It is a common observation that almost any of the different operations obtain a large degree of satisfactory results.

When pterygium surgery comes up for discussion, then it is that speculation becomes replete. An instance of such an analysis, even at the present period of scientific reasoning, is that of a "keratotatic influence drawing the growth into the cornea" and would claim that "cure is obtained by turning the growth away from this pulling force."

The surgery of those who lived at an early date was that of exsection. These ancients cut it away according to surgical principles and were not influenced by the fallacy of irritants having provoked it. They were not fearful of leaving a scar in the palpebral apperture, any more than leaving a scar on any other part of the sclera. Consider the fact that such a procedure was replaced by another, a procedure that did not conform to principles and yet adopted almost universally.

It is most unfortunate that such false conceptions should have been maintained for such a long period of time, all because one imbibed from the other and passed the errors along.

The pterygium is a loose mass in the stroma of the conjunctiva, and grows into the cornea. This development destroys Bowman's membrane and pulls along with it the conjunctival frame work into characteristic folds.

It is first of a globular shape, then triangular with base at cornea, finally that of a little wing. In its progression it raises up the corneal epithelium forming, as it was, a shed for itself and provoking blemishes in front so as to provide for further advance. The blemishes are the Islands of Fuchs and are fundamental for a pterygium study.

The growth is movable on the sclera and to such an extent that it can be lifted bodily and directed to another position. Its covering remains comparatively normal throughout its evolution.

It can be made to distend when injected with oil, not alone in the body but in the head also, and if force is not too great, the oil will be limited in spreading. It is its loose fabrication that has made this distention possible and is that which Fuchs called attention to.

The pterygium is to be cured by breaking-up this loose tissue, and when transplantation cures, it accomplishes its results for having undermined the tissue.

The author advocates distending the tissue with oil, and then to sever the neck of the growth. He pulls the rim of the head from the cornea, and leaves the cornea smooth and free of tissue. The head is not to be shaved from the cornea.

Having accomplished the removal of the head, he proceeds to break up the loose fabrication that exists in the body of the growth and adds nothing more to the procedure other than to milk away excess oil and to place a bandage. You can, if you wish, drape the conjunctiva over the sclera, but this latter is not essential. Any excess oil will remain indefinitely in these loose spaces and in that the oil used is an iodized oil of 20% or 40% Iodine, there is a therapeutic effect also obtained.

The breaking up of the loose tissue is that which cures. Transplantation only cures in so far as the mass is demolished flat to the scleral surface.

Those who would perform transplantation, in which the growth is changed bodily in position, can not hope for cure. It is essential to break up the growth. Fortunately it is difficult to transplant bodily, otherwise recurrences would happen more often. Have it well understood that transplantation is a misnomer.

Fig. 1

Fig. 1.—Pterygium as seen in polyp stage. A round edematous elevation in the conjunctiva situated in the palpebral aperture to the inner or outer canthus and sometimes both. Increased number of vessels are noticeable.

Fig. 2

Fig. 2. — Pterygium seen in the pinguecula stage. A triangular edematous mass with base at cornea. This shape is produced by lids having constricted the polyp, see Fig. 1.

Fig. 3

Fig. 3.—The pterygium. A loose tissue mass evolved in the conjunctiva stroma from a polyp. It bores its way under the corneal epithelium, and while doing so destroys Bowmans membrane.

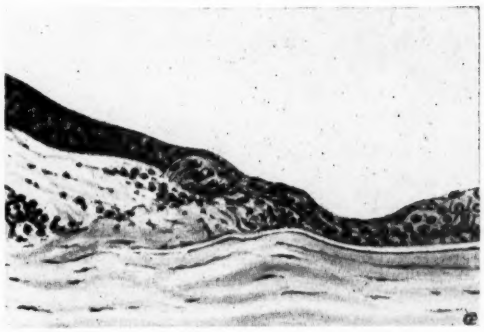


Fig. 4

Fig. 4.—The pterygium seen histologically.

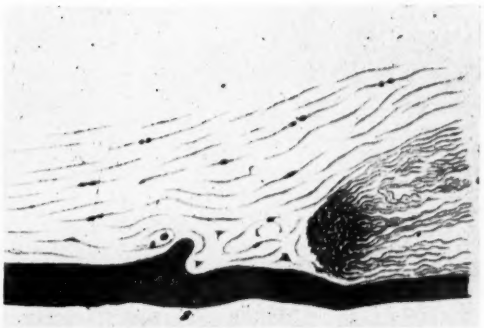


Fig. 5

Fig. 5.—The pinguecula seen histologically.

There are no excuses offered as to how this procedure cures. The explanation is within the grasp of everyone. Many have realized the importance of the loose fabrication. Ziegler, for instance, removed the stromal growth by dissecting it away subconjunctivally, and others injected it with foreign agents and cauterized, etc.

Though surgery leads the way in solving the pterygium enigma, it does not stand alone. The classical teachings of Fuchs should be given all honor. If his teachings had been understood there would have been no difficulties during these last thirty-odd years. In conclusion — Dust and irritants do not excite the development of the pterygium growth. The pterygium is a loose mass in the

frame work of the conjunctiva and can be razed to the level of the sclera.

DISCUSSION

Dr. Oscar B. Nugent.

Perhaps no one in the United States has had the chance to observe so many pterygia as has Doctor Dimitry, and, further, no one has made a more extensive study of the pterygium in all its various phases.

Most pterygia undergo a gradual change from their very beginning and their growth carries them from the conjunctiva across the limbus onto the cornea where they can easily be seen. An occasional one will extend itself far enough towards the center of the cornea to obstruct the passage of light, thereby causing a partial or even a complete loss of serviceable vision.

Its position is usually in the palpebral fissure, most frequently on the area toward the inner canthus and less often from the outer canthus. Sometimes it is found toward both the inner and the outer canthus in the same eye at the same time, and I have seen it appear in this manner in both eyes of the same patient —a rare condition of four pterygia in the two eyes.

This abnormal growth of the eye occurs more frequently in some sections of the country than in others. In Chicago, it is comparatively infrequent, while in New Orleans it is most common.

In Chicago, most of our pterygia migrate from other sections of the country, it being quite rare among our native-born.

Inasmuch as Doctor Dimitry has so completely covered the habitat, metamorphosis, cause and treatment of the pterygium, I will confine the remainder of my remarks to its surgical management and some special points in the after-treatment.

My surgical preference has been the transplantation of the head of the pterygium under the conjunctiva after the manner described by our colleague, Dr. McReynolds of Dallas, Texas.

I have also removed it by coagulation with the short-wave diathermy current, using a book electrode, by Maurice Cottle, of Chicago. I much prefer, however, the removal of the head of the pterygium by the use of Von Graeffe knife, being very careful to remove the entire growth so that no trace of it remains on the cornea.

If this is allowed to heal without special treatment, a scar tissue results at the point of its attachment to the cornea which is always quite visible and easily seen by the patient's associates under the most ordinary lighting conditions.

I have found that the denuded area can be completely covered with new, clear epithelial corneal cells without the usual resulting scar by treating it with ultra-violet applications twice a day until the entire surface is covered with epithelium.

At first, the new epithelium cells will be milky but in the course of two to three months the cells give up their opacity and become clear and transparent, having the same characteristics as the surrounding corneal cells.

This has a definite value to the patient who is very particular about his appearance.

Patients with pterygium should be advised to submit to surgery for the removal of the growth just as soon as, or before, it reaches the clear epithelium of the cornea for in so doing, the possibility of a scar is entirely overcome.

I wish to thank Doctor Dimitry for his most complete and understandable presentation of this complex subject, and to say that I am, indeed, honored to have had a part in the discussion of it.

RIASSUNTO

L'autore ha preso in esame le varie ipotesi che sono state in voga, di tempo in tempo, per spiegare la patogenesi ed etiologia del pterigio. Ha messo in evidenza che tutte l'ipotesi hanno in comune il postulato dell'irritazione connessa con i

climi asciutti ed associata a peculiare proprieta' specifiche del pulviscolo atmosferico, che avrebbe azione caustica per il contenuto di alcali.

L'autore impugna la validita' di questo ipotesi ed attira l'attenzione degli studiosi sul fatto che il pterigio e diffusissimo nello Stato Luisiana, per quanto questo regione sia nota per il clima umido a vegetazione lussureggiante e scarso pulviscolo atmosferico privo di alcali.

Un nuovo metodo di operazione e' proposto, consistente nell'elevazione del pterigio della sottostante sclera, mediante iniezione sotto congiuntivale di lipoiodolo, seguita dall'ablazione, cominciando con la separazione e legatura dei vasi dal'margine corneo congiuntivale, seguito dalla dissezione verso il canto.

L'autore ha preso anche in considerazione altre metodi proposti per il trattamente chirurgico ed ha cercato dimonstrare la scarsa attentibilita' dei cosi' detti metodi di transplantazione.

RÉSUMÉ

L'auteur a examiné les différentes hypothéses qui ont été en vogue, de temps en temps, pour expliquer la pathogénèse et l'étiologie du ptérigium. Il a montré que toutes les hypothèses tiennent en commun la théorie de l'irritation reliée aux climats tecs et associée avec les propriétés particulières et spécifiques de la poussière atmosphérique qui aurait une action caustique grace à son contenu de matiéres alcalines.

L'auteur dénie la valeur de cette hypothèse et attire l'attention des savants sur le fait que le ptérigium est très répandu dans l'état de la Louisiane malgré que cette région soit notée pour son climat humide avec végétation luxuriante et peu de poussière atmosphérique sans matières alcalines.

Il propose une nouvelle méthode d'opération consistant dans l'élévation du ptérigium au-dessus de la scléreuse sous-jacente au moyen d'une injection sous-conjonctivale de lipiodol, suivie par son ablation en commencant avec la séparation et la ligature des vaisseaux de la marge cornéo-conjonctivale et continuant avec sa dissection vers le canthus.

L'auteur a aussi discuté d'autres méthodes proposées pour le traitement chirurgical et a tenté de prouver le peu de succes qu'on peut espérer des soi-distant méthodes de transplantation.

RESUMEN

Dimitry revisa las varias hipótesis que han estado en boga, de cuando en cuando, para explicar la patogenia y la etiología del pterigión. Pone de manifiesto que todas las hipótesis tienen en común el postulado de la irritación relacionada con los climas secos y asociada a propiedades específicas peculiares del polvo atmosférico, que tendría una acción cáustica por su contenido en álcali.

El autor refusa el valor de esta hipótesis y llama la atención de los investigadores sobre el hecho de que el pterigión es muy común en el Estado de Luisiana, cuya región es conocida por su clima húmedo, su vegetación exuberante y la escasa cantidad de polvo atmosférico el cual no contiene álcali.

El autor propone un método nuevo de operación, que consiste en la elevación del pterigión de la esclerótica subyacente, por medio de inyecciones subconjuntivales de lipiodol, seguida de la ablación comenzando con la separación y ligadura de los vasos de la margen corneal-conjuntival seguida de la disessión hacia el canto.

El autor revisa también otros métodos propuestos para el tratamiento quirúrgico del pterigión y trata de demostrar el escaso valor de los llamados métodos de transplantación.

ZUSAMMENFASSUNG

Der Verfasser hat die verschiedenen Hypothesen untersucht, welche von Zeit zu Zeit aufgekommen sind, um die Pathogenese und Aetiologie des Pterygium zu erklären. Er hat gezeigt, dass alle diese

Hypothesen eine Theorie gemeinsam haben, nämlich die der Reizung, welche assoziert ist mit trockenen Klimas und mit den eigentümlichen spezifischen Eigenschaften des atmosphärischen Staubes, welcher, wegen seines alkalischen Gehaltes, eine ätzende Wirkung hat.

Er verneint die Gültigkeit dieser Hypothese und weist die Naturforscher auf die Tatsache hin, dass Pterygium im Staate Louisiana sehr häufig vorkommt, obgleich diese Region ein feuchtes Klima hat mit üppigem Pflanzenwuchs und mit wenig atmosphärischen Staub ohne Alkali.

Er schlägt eine Operation vor, welche in der Abhebung des Pterygium über der unterliegenden Sklera mittels subkonjunctivaler Einspritzung von Lipiodol besteht und gefolgt ist von Ablation, beginnend mit der Separation und Ligation der Gefässe des Hornhaut-Bindehaut-Randes und Einschnitt nach dem Augenlidwinkel.

Er bespricht auch andere Methoden, welche für die chirurgische Behandlung vorgeschlagen worden sind und versucht darzutun, dass die so-genannten Transplantationsmethoden von geringen Wert sind.

Book Reviews

Apoplexies Viscerales Sereuses et Hemorrhagiques (Infarctus Visceraux). By Raymond Grégoire, Prof. a la Faculté de Medecine de Paris and Roger Couvelaire, Chirurgien des Hopiteaux de Paris, pp. 177. Masson and Co., Paris, 1937.

THE authors made an exhaustive study of visceral infarcts (apoplexies) from the clinical point of view. They point out that misinterpretation of symptoms, the result of visceral infarctions frequently result in tragedies and loss of life, particularly when prompt and proper therapeutic indications are not met with. The clinical entities under discussion tax the diagnostic acumen of both physician and surgeon, alike. The authors' ingenious experiments on lower animals in their approach to a possible solution of the problems presented, yielded some interesting conclusions. First, the authors produced anaphylactic shock by artificial means on laboratory animals. From these they were able to conclude that experimentally produced anaphylactic and anaphylactoid shock is followed, essentially, by the same results observed in disturbances of the vegetative nervous system occurring in human beings under similar conditions. Careful comparisons are drawn of the results obtained from animal experimentation with those of clinical patients. While the authors do not claim that their conclusions are final or incontrovertible, their deductions seem to be logical. For example, apoplexies observed within the abdomen of human beings bear a striking resemblance in symptomatology to the apoplexies artificially produced in laboratory animals. The authors point out that hemorrhagic pancreatitis, intestinal infarcts and uter o-tubo-ovarian apoplexies manifest themselves at the onset by symptoms of shock, lipothymia and a decided fall in the blood pressure. These phenomena are accompanied by venous distention. These the authors attribute to "shock of intolerance." Similar manifestations were noted in the animals experimented upon. The question the authors ask is: Are visceral apoplexies the result of primary alterations in the vegetative nervous system which react in an abnormal manner on the vascular apparatus? If that be so, a new chapter is opened in pathology. The therapeutic indications garnered from a study of the symptoms produced by serous and hemorrhagic apoplexies of the intestines the results of experimental and clinical data are given. Supposing the surgeon in charge of a case is an experienced technician, the problem reduces itself to the question as to "What procedure is best in the interest of the patient?" If, as the authors believe, such apoplexies are the manifestations of "shock of intolerance" one must determine how much damage the existing neuro-vegetative disorientation has produced on the particular viscera affected. Two urgent indications are postulated: First, the treatment of the shock syndrome *per se.* Second, immediate verification of the degree of alteration produced in the structure of the intestine. The authors point out that the symptom complexes under consideration may disappear spontaneously. The keynote of procedure is to combat low

blood pressure, the result of shock, by hyposulphite of soda or adrenalin. Case histories cited show how spontaneous recoveries may take place in this form of infarction. It is pointed out that the use of general anesthesia by itself may be a curative factor by suppressing nervous impulses. Clinical histories support the thesis presented. The reader will find Chapter 4 on "Serous and hemorrhagic apoplexies of the pancreas" when read in conjunction with Chapter 5 on "Serous and hemorrhagic apoplexy of the lung" and Chapter 6 dealing with "Serous and hemorrhagic apoplexy of the uterus" very interesting and illuminating. The work is completed by a discussion of "spontaneous serous and hemorrhagic apoplexies" from the clinical and anatomic point of view. For the advanced student as well as for the diagnostician and surgeon, the work is highly recommended for its intrinsic value as a classic contribution to the physio-pathology and treatment of these rather common and obscure clinical entities.

Thorek.

La Chirurgia Del Medico Pratico. By Sen. Prof. Davide Giordano, Edisioni, Minerva, Medica—Torino. 400 pp. 300 illustrations.

THIS excellent work from the master pen of so well known and so richly experienced surgeon as Prof. Giordano, will definitely fill an important niche in contemporary surgical literaature. The text is replete with important material not only to the surgeon but to all engaged in the practice of medicine particularly to everyone in general practice, the student and general surgeon. A tremendous amount of worthwhile material is contained in this single volume of about 400 pages. The preface in which Giordano gives the raison d'etre for the work is a classic. The book is divided into twelve chapters. It begins with a discussion of the various infections, methods of disinfection and topics of general surgery. This is followed by an admirable division and lucid description of operative procedures in regional surgery, beginning with the skin and subcutaneous tissues, followed by the head and embracing every section of the anatomy. While the technic described in most cases is the classical method, special procedures are occasionally interjected. For example appendectomy by the lumbar route, etc. The illustrations are well executed. In most instances the pathological entity discussed is illustrated by photographs. The technical steps are presented with fine drawings. Those who have command of the Italian language will find this work of inestimable value as a ready reference book replete with sound advice and pointed surgical aphorisms so characteristic of the author. The index is thorough and exceptionally well arranged. An enthusiastic reception for the work is predicted.

Thorek and Delchicca.

Endemic Cretinism. By DeQuervain and Wegelin, 206 pages, 120 illustrations. Verlag Von Julius Springer, Berlin und Wien.

AS may be expected from the reputations of the distinguished authors, this monograph on endemic cretinism is thorough and presents every aspect of the subject in a comprehensive and masterly way, so that results of modern research and observation in regard to this disease, are clearly and consecutively presented to the reader. The subject is covered in nine chapters. De Quervain writes Chapters V, VII and IX, covering the course and clinical findings, the pathologic physiology, prophylaxis and treatment. Chapter VI, which takes up nearly half of the monograph, thoroughly covers the pathologic anatomy and histology, giving systematically in

detail all the organic and constitutional anomalies and pecularities found in cretins. Both authors jointly contribute Chapter VII on the pathogenesis. The authors show that although endemic cretinism is always geographically associated with endemic goiter, both conditions are different expressions of thyreopathies. Many cretins do not show evidence of goiter and the physical manifestations of thyreopathy are different in goiter, myxedma and cretinism. Regarding the pathogenesis of endemic cretinism, the authors lean to the view that the condition results from a congenital hypothyreosis which begins in intrauterine life, the results of faulty thyroid secretion being, however, still continuous in extrauterine life and expressed as failures of development both physical and psychic. It must be considered as a racial stigma. While there are many theoretic possibilities, in which the fetal thyroid may be affected by thyroid noxia acting in endemic goiter regions over a long period, the most plausible explanation is either a genotypic predisposition, due to damage to the genes of the ancestors, or more directly by damage to the cytoplasm of the maternal ovum by goiter noxia in such regions. The majority of the mothers of cretins appear to be sufferers from goiter or they have a family history of such. Touching the prophylaxis and treatment, little can be done directly. Iodine in small doses administered to the pregnant is apparently of some good, and as a matter of racial hygiene in endemic goitrous regions it should be given to the population also in small doses. Surgery by implantation of healthy thyroid tissue though feasible appears to have a very limited field of action. As a complete and up to date presentation of the subject this monograph should have a special appeal to endocrinologists, clinicians and all engaged in social and eugenic betterment.

Thorek

Anesthesia. By A. M. Dogliotti, Unione Tipografico-Editrice Torinese, Torino, 1935, 552 pages, 236 illustrations.

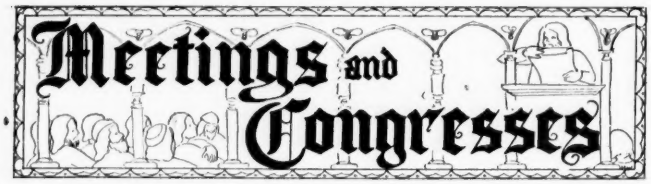
IN American surgical practice anesthesia is to often treated as a routine matter and but few surgeons regard its possible dangers, complications and sequelae for the patient in the same light as those af the surgical operation itself.

Professor Dogliotti's treatise on anesthesia departs from the beaten track usually followed in such textbooks. It is an entirely original work based on the fruit of his daily observations during his fifteen years of work in the Surgical Clinic of Turin. From what he observed in practice he has been actuated by an intense desire of contributing to a more exact and diffuse knowledge of what is possible in alleviating the suffering of others as well as improving the technic and thus bettering the prognosis in surgical operations. He discusses the difficult situations that may arise, the unforeseen complications and the surprising exceptions that occur at times.

The first part of the volume deals with generalities including the physio-pathology of pain and its inhibition and the preparation of patients. The second part deals with narcosis, including the various methods. The third and longest part of the book is devoted to the practical applications of local, regional and spinal anesthesia.

What the reader will find of particular interest is the minuteness with which the author enters into every technical detail and his insistence on the precautions which the anesthetist and surgeon must take both in avoiding and dealing with complications. More than 200 original illustrations exemplify the technic of ad-

(Continued on Page 105)



SCIENTIFIC ASSEMBLY OF THE UNITED STATES CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS TO BE HELD AT THE BELLEVUE-STRATFORD HOTEL OF PHILADELPHIA ON OCTOBER 13 AND 14 1938

MOSES BEHREND, M.D., *General Chairman*

THE second National Assembly of the United States Chapter of the International College of Surgeons will be held in Philadelphia, Pennsylvania on October 13 and 14, 1938. Splendid progress has already been made in preparation for this Assembly and the following surgeons have accepted responsibilies as outlined below.

General Chairman of Philadelphia Assembly: Moses Behrend, M.D.

Committee on Scientific Program: Dr. W. Wayne Babcock, Chairman; Dr. P. Brooke Bland, Dr. E. L. Eliason, Dr. William Bates, Dr. D. Roman, Dr. Walter I. Lillie, Dr. Temple Fay.

Committee on Publicity: Dr. Temple Fay, Chairman; Dr. John Royal Moore, Dr. Thomas A. Shallow.

Committee on Clinics: Dr. William Bates, Chairman; Dr. Thomas A. Shallow, Dr. Walter I. Lillie.

Committee on Hotel Reservation: Dr. M. A. Weinstein, Chairman; Dr. D. Roman, Dr. Earl Craig.

Ladies Entertainment Committee: Mrs. C. L. Jackson, Mrs. William Bates, Mrs. Walter I. Lillie.

Committee on Banquet: Dr. C. L. Jackson, Chairman; Dr. M. A. Weinstein, Dr. Earl Craig, Dr. Melvin M. Franklin.

Registration begins Wednesday, October 12th, after 2 p. m.

PROGRAM OF PHILADELPHIA MEETING OF THE INTERNATIONAL COLLEGE OF SURGEONS

THURSDAY, OCTOBER 13TH, 1938

2 P. M.

Introduction of speakers by André Crotti, M.D., President of the U. S. Chapter of the International College of Surgeons:

Address by the Honorable George H. Earle, Governor of the State of Pennsylvania;

Address by the Honorable S. Davis Wilson, Mayor of the City of Philadelphia.

Announcements by Chairman of the General Committee.

Scientific Papers

2:30 P. M.

Gastrectomy—John F. Erdman, M.D., New York City.

3 P. M.

Motion Picture of Human Larynx; Surgical Significance in Normal and Abnormal States—William H. Lell, M.D., Philadelphia.

3:30 P. M.

Secondary Closure of Residual Cavities in Chronic Empyema—Jerome H. Head, M.D., Chicago.

4 P. M.

Lesions of the Cranial Nerves—Walter E. Dandy, M.D., Baltimore.

Time allotted for all papers will be 20 minutes. Ten minutes will be allowed for discussions.

THURSDAY AFTERNOON

Entertainment and trips for the ladies.

7 P. M.

Buffet Dinner at the Bellevue-Stratford Hotel.

Surgical Forum 8:30 p. m.

8:30 P. M.

General Surgery—The Differentiation Between Visceral and Parietal Pain, in Arriving at a Surgical Diagnosis—Wm. Bates, M.D., Philadelphia, Pa.

9 P. M.

Gynecology and Obstetrics—James E. King, M.D., Buffalo, N. Y.

9:30 P. M.

Otolaryngology, Bronchoscopy and Larynx Surgery—G. Tucker, M.D.

10:30 P. M.

Cabaret Floor Show for members and their ladies—Dr. Temple Fay, Philadelphia, Pa., Director.

Entertainment and trips for ladies all day Thursday.

FRIDAY, OCTOBER 14TH, 1938

Scientific Papers

1:30 P. M.

Pharyngeal Diverticulum, One Stage Resection — Thomas A. Shallow, M.D., Philadelphia, Pa.

2 P. M.

Duodenal Syndrome — Felix Cunha, M.D., San Francisco, Calif.

2:30 P. M.

The Present Status of Gall Bladder Surgery—Julian C. Pate, M.D., Tampa, Florida.

3 P. M.

The Pathological Basis for the Treatment of Prostatic Hypertrophy — David Davis, M. D., Philadelphia, Pa.

3:30 P. M.

The Importance of Blood Supply in Fracture of the Neck of the Femur — Fred H. Albee, M.D., New York, N. Y.

5 P. M.

Executive Meeting of Members and Fellows.

7:30 P. M.

Assembly Banquet

Address by President and others.

Conferring of Degrees.

CLINICS

THURSDAY AND FRIDAY, OCTOBER 13TH AND 14TH

Busses or taxicabs leave for Clinics at 8:30 a. m. from the Bellevue-Stratford Hotel.

Special Clinics 9 to 12 a. m. (wet and dry).

TEMPLE UNIVERSITY HOSPITAL UNIT

Dr. W. Wayne Babcock, Director, General Surgery.

Dr. Chevalier Jackson, Bronchoscopy.

Dr. Walter I. Lillie, Eye.

Dr. W. E. Chamberlain, X-ray.

Dr. Temple Fay, Neuro Surgery.

Dr. W. E. Burnett, General Surgery.

Dr. J. N. Coombs, General Surgery.

Dr. H. A. Duncan, Gynecologic Surgery.

Dr. Robert F. Ridpath, Otolaryngology.

Dr. Matthew S. Ersner, Otolaryngology.

UNIVERSITY HOSPITAL UNIT

Dr. E. L. Eliason, Director, General Surgery.

Dr. I. S. Ravdin, General Surgery.

Dr. A. Randall, Genito-Urinary Surgery.
Dr. F. E. Keene, Gynecologic Surgery.
Dr. F. C. Grant, Neuro Surgery.
Dr. Gabriel Tucker, Bronchoscopy.
Dr. George M. Coates, Otolaryngology.
Dr. A. Bruce Gill, General Surgery.
Dr. L. K. Ferguson, General Surgery.

JEFFERSON HOSPITAL UNIT

Dr. P. B. Bland, Gynecologic Surgery.
Dr. Thomas A. Shallow, General Surgery.
Dr. B. M. Anspach, Gynecologic Surgery.
Dr. David M. Davis, Genito-Urinary Surgery.
Dr. H. H. Bradshaw, Thoracic Surgery.
Dr. George P. Muller, General Surgery.
Dr. Charles Shannon, Ophthalmologic Surgery.
Dr. Horace Williams, Otologic Surgery.
Dr. Karl Kornblum and Associates — Roentgenological Technique.
Dr. Warren B. Davis, Plastic Surgery.
Dr. Arthur J. Davidson, Orthopedic Surgery.

HAHNEMANN COLLEGE UNIT

Dr. Earl Craig, Director, Gynecologic Surgery.
Dr. G. Van Lennep, General Surgery.
Dr. Leon Ashcraft, Genito Urinary Surgery.
Dr. Thomas Doyle, General Surgery.
Dr. Frank Nagle, Eye.

PHILADELPHIA GENERAL HOSPITAL UNIT

Dr. Moses Behrend, M.D., Director, Thoracic Surgery.
Dr. H. R. Owen, General Surgery.
Dr. J. C. Howell, Surgery of Maligancies.
Dr. L. K. Ferguson.
Dr. P. A. McCarthy, General Surgery.
Dr. Wm. T. Lemmon, General Surgery.

ST. LUKES CHILDRENS HOSPITAL UNIT

Dr. D. Roman, Director, General Surgery.
Dr. L. Averett, Gynecologic Surgery.

* * *

International Cancer Congress in 1939. Dr. Francis Carter Wood, New York, is president and Dr. Donald S. Childs, Syracuse, N. Y., is secretary-treasurer of the third International Cancer Congress, to be held in Atlantic City, Sept. 11-16, 1939, with headquarters at Haddon Hall.

* * *

Cancer Exhibit for the World's Fair. Plans for an exhibit sponsored by the New York City Committee of the American Society for the Control of Cancer at the New York World's Fair 1939 were recently announced.

* * *

The Italian Society of Gastro-enterology met at Rome under the presidency of Prof. Cesare Frugoni of Rome.

* * *

The Societa Medico-Chirurgica of Bologna met under the presidency of Prof. Vittorio Putti.

* * *

The American Association for Thoracic Surgery. The twenty-first annual meeting of the American Association for Thoacic Surgery was held in Atlanta, Georgia, April 4th, 5th and 6th, under the presidency of Dr. Stuart W. Harrington of Rochester Minn.

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The 17th Congress of the *International Research Society* will be held in New York City from the 17th to the 21st of October, 1938. Information may be obtained from Dr. Monod, 12 Rue de Seine, Paris.

The Italian Society of Anesthesia and Analgesia under the presidency of Prof. A. Mario Dogliotti was held on the 23rd and 24th of April, 1938, in Bologna. Two questions were discussed: (1) Anesthesia by superheated ether vapor; (2) choice of methods of anesthesia.

* * *

The International Congress of Military Medicine and Pharmacy was sponsored by King Albert and Queen Elizabeth of the Belgians, and was conceived and organized in 1921 by Col. Jules Voncken of the Belgian Military Medical Service, and Dr. William Seaman Bainbridge, Captain, Medical Director in the United States Naval Reserve. Since then it has met every two years in the various capitals of Europe. It aims at the internationalization of all branches of the healing art, with the collection, codification, and standardization of all available knowledge so that, regardless of nationality or position of the ever changing lines of combat, prompt, effective, and uniform treatment of the sick and wounded in the war zone may be carried out without the interruption, perhaps, of enemy successes and occupation of a territory. At each Congress six main topics are discussed. Its Permanent Committee appointed at the first meeting by the King of the Belgians, is the working and managing unit and consists of one member from each of eight nations—Belgium, France, Great Britain, Italy, Spain, Brazil, Switzerland and in the United States of America (which Dr. Bainbridge represents). The central bureau of the Congress is in Liége, Belgium.

* * *

The American College of Surgeons will hold its annual congress at the Waldorf-Astoria Hotel in New York City, October 17-21, 1938. Dr. George Crile, 40 E. Erie Street, Chicago, is Chairman of Board of Regents.

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The *International Hospital Association* held its meeting in June at Frankfort-on-the-Main in Germany under the Presidency of Dr. Malcolm T. MacEachern.

* * *

The American Medical Association held its annual meeting in San Francisco, June 13-17, 1938, (Sec'y. Dr. Olin West, 535 N. Dearborn Street, Chicago).

* * *

The Associated Anesthetists of the U. S. and Canada will meet in New York, October 17-21, 1938, (Sec'y. Dr. F. Hoeffer McMechan, Westlake Hotel, Rocky River, Ohio).

* * *

The U. S. Section of the International College of Surgeons will meet in Philadelphia, October 13-14, 1938. (Executive Sec'y. Dr. Edward Frankel Jr., 217 East 17th St., New York City or: Dr. Charles Arnold, Sec'y. Scientific Assembly, 941 0 Street, Lincoln, Nebr.).

* * *

The New England Surgical Society will meet in Boston, 1938. (Sec'y. Dr. John F. Gile, Hanover, New Hampshire).

* * *

The British Medical Association of which Sir Robert J. Johnstone, Belfast, is president is having its one hundred and sixth annual meeting in Plymouth, July 15-22, 1938. Dr. Colin D. Lindsay is president-elect.

* * *

The *Sociéta Medico-chirugica* met at Bologna with Prof. Vittorio Putti as president. There was a presentation of the experimental work of Dell'Acqua who has been using sodium dehydrochlorate for reducing hyperglycemia. He uses

10 cc. of a 20% solution intravenously and notes a marked drop in blood sugar in the majority of cases.

* * *

The *President of the United States, Franklin D. Roosevelt,* issued a proclamation designating April as "Cancer Control" Month inviting the medical profession, the press and all interested in a national program for the control of cancer to unite in an effort to bring before the people of the nation the necessity for such a program.

* * *

The *Manchester Medical Society of England* had its annual meeting on May 4th. Sir Richard Needham discussed medical education in India, Ceylon, Singapore and Hong-Kong. He showed that despite the progress of scientific medicine a large number of people still depend on native practitioners of ancient systems of medicine. He deplored the fact that with the increase in medical schools two types of practitioners were being sent out, licentiates and graduates. He felt that ethical standards should be raised by training only one type, the advanced practitioner or graduate type.

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The *Societa Italiana di ostetrica e genicologia* held its thirty-fourth national convention in Rome. Prof. Arton of Sant'Agnese clinic was chairman of the executive committee.

* * *

The *Royal College of Surgeons of England* held a council meeting on Dec. 9th. Arrangements were made for lectures to be given by Sir Arthur Keith, F.R.C.S., on The Mount Carmel Skeletons, and by Dr. W. E. Gye, director of the Imperial Cancer Research Fund, on Cancer Research. An autographed copy of the Hunterian oration delivered by Sir. John Bland-Sutton in 1923 and an autographed copy of the speech delivered by Mr. Rudyard Kipling at the dinner of the same evening were received from Lady Bland-Sutton, and a minature of John Abernethy from Mr. L. R. Braithwaite.

* * *

The *American Society for the Control of Cancer* celebrated the twenty-fifth anniversary of its founding, with a dinner in New York, on March 25th. Among the speakers were Dr. James Ewing of New York; Dr. Ellis Fischel of St. Louis; and Dr. Bowman C. Crowell of Chicago. Clarence C. Little, Sc.D., Bar Harbor, Maine, presided.

* * *

The Exibition of The American Physicians Art Association was held in the San Francisco Museum of Art in the Veterans Building, Civic Center, June 13th to June 18th, inclusive.

* * *

Rush Medical College Alumni and Faculty Dinner.

A large gathering of alumni were present on June 7th, 1938—Drake Hotel, Chicago.

The principal speaker of the evening was Dr. Dean D. Lewis who spoke on "The Past and Future."

Many students and admirers of Dr. Lewis greeted him cordially. His remarks were to the point and gave much food for thought. He stressed the importance of not neglecting the teachings of the pioneers and to cultivate the advantages of the five senses in diagnosis and accord to laboratory observations mainly corraborative importance.

Dr. Lewis has always been a friend to his students — a prolific contributor to surgical literature and a keen observer.

News and Personals

Prof. René Leriche succeeded Prof. Charles Nicolle to the chair of experimental medicine at the College de France.

* * *

Prof. Theodore Papayouannou of Cairo has been honored by the Faculty of Medicine of Athens in creating him a member Honoris Causa.

* * *

Prof. Eugene St. Jacques of Montreal has been the recipient of the Prix Montyon of 1,500 francs and honorable mention for his experimental work in the treatment of certain forms of infections by the intravenous injections of carbon.

* * *

Prof. Raymond Grégoire of Paris, France has been made a member of the Academy of Medicine of Paris.

* * *

Prof. A Mario Dogliotti has been called as Extraordinary Professor to the Chair of General Clinical Surgery and Surgical Therapy of the Faculty of Medicine, Catania, Italy.

* * *

Senator Prof. Davide Giordano of Venice, Italy, has been made a corresponding member of the Faculty of Medicine of Paris.

* * *

Dr. André Crotti of Columbus, Ohio has been made Chevalier of the Legion of Honor of France. This is the second decoration he has received. The first one being that of Knight of the Crown of Italy.

* * *

Dr. Alexis Carrel of the Rockefeller Institute of Scientific Research received the degree of Doctor of Science from Manhattan College on Tuesday, April 26, on the occasion of the opening of the new library of the college.

* * *

Sir. Wm. Arbuthnot Lane was the guest of honor of the International Medical Club of America in September.

* * *

Frequency of Operations Among 9,000 *Families* is subject of an editorial of the Journal of the A. M. A. May 21st 1938. In these 9,000 families, 38,544 persons were involved. From this last number there were 2,623 surgical operations or an annual rate (adjusted for age) of 65 operations per thousand persons. These crude rates give a startling picture. If it were representative of the full picture it would mean that every individual, on the average, would have one operation approximately every 15 years or would have 4 operations altogether, assuming a life expectation of 60 years. But this does not represent a correct interpretation of what actually occurs. The operations include both primary and contributory causes of illness and in a few instances two or more operations in connection with the same diagnosis.

The surgical procedures listed included everything from a major abdominal operation to lancing a boil or removing a wart. If operations in connection with injuries are considered as a unit they amounted to 20.3 per cent of the total, and the group of female genital and puerperal operations to 8.3 per cent. When these two are added to tonsillectomy and appendectomy, the four fairly specific types of operations made up about two thirds of all the surgical procedures.

ANNOUNCEMENT OF AWARDS AND GIFTS

PRESIDENT Crotti announced at the banquet at the Southern Sectional Assembly of the United States Chapter of the International College of Surgeons held in Tampa, Florida, February 28, 1938, that the Executive Council had ordered the announcement of prizes to be given by the College, the conditions to be as follows:

1. Original studies on the following subjects:
   a. Thoracic surgery.
   b. Neurosurgery.
   c. Otolaryngologic surgery.
2. There shall be three prizes. The first money prize of $500.00 on Thoracic Surgery. The second and third prizes (for Neurosurgery and Otolaryngologic Surgery) shall be each a diploma of merit.
3. No member of the Executive Council or Officers of the College are eligible to compete.

Time: The results will be announced at the International Assembly of the College to be held in New York City in the spring of 1939, the exact date to be announced later.

4. No name of any contestant shall appear upon the Thesis but such thesis shall be marked with a device or symbol. Each contestant shall supply at the same time a sealed envelope bearing such device or symbol with his name inside the envelope.
5. Theses may be presented by anyone regardless of race, creed, color or sex.
6. All Theses become the property of the United States Chapter of the International College of Surgeons, (Geneva).
7. All Theses to be in the hands of the Special Committee appointed to pass upon them, six weeks in advance of the day of the Spring, 1939 International Assembly.

The gift of Mrs. William Randolph Hearst for the promised establishment of an International Museum of the History of Surgery is hereby gratefully acknowledged by the Board of Trustees. This gift is bequeathed on condition that the College will sustain its functions.

BOOK REVIEWS

(Continued from Page 97)

ministration and those covering regional anesthesia are especially illuminating; in no other work have we seen anything approaching the completeness with which this branch of surgical anesthesia has been presented and illustrated.

Although Professor Dogliotti has written this treatise especially for the Italian profession, many of his original chapters should be of the greatest interest and profit to anesthetists, surgeons and internists elsewhere. We hope that the book will be translated into English.

There can be little doubt that Dogliotti has contributed a most notable addition to the literature of anesthesia, and deserves the congratulations of all those who appreciate the presentation of well-done, original work.

Thorek and Delchicca.

Histoire De La Medecine. By Dr. Eugene Saint-Jacques, Editions Beauchemin, Montreal, Publishers, 1935, 221 pages, no illustrations.

IN this excellent sketch of the history of medicine the author gives a bird's eye view of the gradual evolution of medical science and practice from prehistoric times down to the present day. In succession, the panorama unfolds prehistoric, Greek and Roman medicine; then the Middle Ages, the Renaissance era and the seventeenth and eighteenth centuries. Scientific medicine proper begins with the nineteenth century and here are passed in review the great modern contributions of the major European countries and of America.

Owing to their outstanding work special chapters are devoted to Pasteur and Lister.

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of each epoch which make the epoch stand out as a landmark. The author has, however, selected his materials with appropriate care and the reader will find that matters of importance have been presented to him in such a way that he has a clear conception of the sequence of the evolution of medical events without being confused with minor details.

Thorek.

Cirugia Do Megaesofago. By Vasconcelos and Botello; Paper, 434 pages, 150 illustrations; Companhia Editora Nacional, Sao Paulo, 1937.

THE authors present an excellent clinical study of mega-esophagus. The current theories regarding the origin of the condition, congenital, disturbed muscular tonus, cardiospasm, phrenospasm, etc., are discussed and evaluated the author's histo-pathologic investigations, radiologic studies and personal experimental findings lead them to the conclusion that mega-esophagus is a localized effect of vitamin-B deficiency and that its etiology is comparable to that of beri-beri, a polyneurotic affection acting on the muscles of the esophagus and constricting them in its abdominal portion. There is a good description of the innervation of the esophagus and of its physiology and a thorough acquaintance with these, as well as with the general anatomy of the region especially of the abdominal portion of the esophagus, is shown to be essential to a surgeon who undertakes one of the modern operations for the relief of megaesophagus. About one third of the book is devoted to treatment and this will be found to be the most interesting part to the clinician and surgeon. In the bloodless treatment, the authors give the technic of slow and sudden dilatation, the latter, by means of hydrostatic bags especially being preferable to slow dilatation. Stark's metallic dilator and methods of intragastric dilatation are also described. The

more important surgical operations which have been devised to relieve megaesophagus by surgical external approach to the organ and sectioning the constricting muscles, are described with the technic. These include Heller's operation of cardiolysis, with approach by the abdominal route; the authors prefer to use Camargo's modified median xiphoid-umbilical incision. Heyrowsky's esophagogastro-anastomosis by the abdominal route is also described in detail as well as its modifications (methods of esophagocardioplasty). Finally, the authors discuss methods of thoraco-abdominal approach to the esophagus and describe in detail a method of this approach through the posterior mediastinum which they have devised and which they believe when properly executed will give better results than other methods. The book is well written, well illustrated and exemplified with suitable clinical case reports. We consider it an excellent exposition of all the essential facts and technical details which should be familiar to the surgeon who undertakes surgical interference in this difficult surgical field. The book is clearly printed and there is an ample bibliography of references at the end.

Keroth.

Estudos Cirurgicos. By Enrico Branco Ribeiro. Cloth. pp. 245. Sociedade Editora Medica Limitade, Sao Paulo, Brazil, 1936.

THIS series of 17 essays on various surgical subjects is the second of its kind published by Dr. Ribeiro, of the Santa Catherina Hospital, Sao Paulo, Brazil. The series is based on 10 cases personally observed by the author; it opens with a surgical study of the "nervous caseation" observed in leprosy. In the neuritis of leprosy the peripheral nerves increase in volume showing separate

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beady enlargements or perhaps necrosis followed by caseosis of coagulation. The different cases are classified according to the particular surgical method of treatment used. An essay on the serum treatment of acute appendicitis describes 10 cases in which good results were obtained according to the author. Three studies are devoted to the consideration of hypertrophy of the pyloric muscle in adults, which the author thinks should be treated as a pathologic entity distinct from the hypertrophic stenosis of infancy. The clinical, radiologic, surgical and anatomo-pathologic aspects of the affection are discussed, based on a critical study of the author's personal cases. A partial gastro-duodenectomy is recommended as the treatment of choice, based on the view that the condition is mainly due to nervous disturbances.

From his study of cancer of the gall bladder, the author concludes that in all cases of chronic inflammation of the organ, especially that due to lithiasis, in which ordinary clinical treatment fails, cholecystectomy should be resorted to. There is an excellent clinical study of acute edematous pancreatitis.

The author believes that the cause in four-fifths of the cases is to be found in a calculous gall bladder and that therefore, a simple cholecystectomy should be the treatment of choice.

In his study of tetanus, the author is of the opinion that the treatment should be schematic, namely: treatment of the tetanic focus, general specific treatment, symptomatic treatment. The specific treatment should be the employment of antitoxic serum by the subcutaneous or intramuscular route.

Xam.

Obituaries

Dr. Allen Buckner Kanavel, Editor of Surgery, Gynecology and Obstetrics, one of the outstanding surgeons of the United States, was killed May 29th in an automobile accident in Mojave California; age, 63 years.

Prof. Dominiccio Taddei died at Florence, Italy, at the age of 63.

* * *

Prof. Ismar Boas died at the age of eighty years.

Newly Proposed

CONSTITUTION
and
BY-LAWS
of the
International College of Surgeons

Founded in Geneva, Switzerland
1935

CONSTITUTION

ARTICLE I

1. The name of the Association shall be: *International College of Surgeons.*

2. Its ideals are based on Pasteur's aphorism : "La science n'a pas de patrie parce que le savior est la patrimoine de l'humanite, le flambeau qui eclaire le monde," and its Motto is: *"Pro Omni Humanitate."*

3. The Seal of the International College of Surgeons shall be: "Pro Humanitate." The power to change the Seal shall rest with the House of Delegates.

4. The International College of Surgeons is a purely scientific organization incorporated not for profit, and solely for the advancement of the Art and Science of Surgery in all its branches.

5. It is strictly non-sectarian and non-political; it is decidedly against Arbitary Restriction of Merit, and is free from prejudice. It will recognize the *Surgeon* and his accomplishments, and will not be influenced by his financial, political or other irrelevant status.

6. The members of the International College of Surgeons shall live up to the code of ethics *of the representative surgical society, or association,* of the country in which they live.

7. The official seat of the organization shall be Geneva, Switzerland. However, it may conduct its affairs from some other city if the General Assembly so decides.

ARTICLE II

Purposes.

1. To bring together the outstanding surgeons of the world so as to form a world-wide surgical elite.

2. *To create the highest standards in surgery* in collaboration with the already existing outstanding surgical societies.

3. To combat illegal and unethical practices in surgery.

4. To inspire in the younger members the duty, and also the desire, to perfect themselves in the art and science of surgery.

5. To let it be known that the International College of Surgeons is a world-wide teaching school in which the leaders in surgery will bend every effort to facilitate the post-graduate education of the junior members of the profession through clinics, special courses, etc.

6. To award Prizes and Distinctions for scientific contributions to be passed upon by an outstanding committee of surgeons. These awards will be given to *any surgeon, anywhere in the world, regardless of nationality, creed or race.*

7. To build, when finances will permit, a building, which will be known as the *International College of Surgeons.* This building will house not only the central offices of the College, but also a surgical and pathological Museum and also a Library. This building may be located in Geneva, or anywhere else in the world as decided by the General Assembly.

8. The International College of Surgeons is subject to the Articles 60 and the following of the Swiss Civil Code.

9. The life of the International College of Surgeons is not limited.

ARTICLE III

Membership.

The membership shall consist of five different classes of members:

1. Associate Members;
2. Members;
3. Fellows;
4. Masters;
5. Emeritus.

Section 1

1. Associate members must be thirty

years of age. They shall be requested to pass an examination, or submit certification by national examining boards whose high standards are accepted by the International College of Surgeons.

2. They must have had interneship in a recognized hospital.

3. They must possess a medical diploma giving them the right to practice surgery in the country where the application is made.

4. They must pay special attention to the practice of surgery, or to some surgical specialty accepted by the I. C. S.

5. They must be connected with a hospital of not less than twenty-five beds.

6. Their moral and ethical fitness, as well as their surgical capacity must be vouched for by at least three members of the International College of Surgeons or Fellows of the International College of Surgeons.

7. They must have been in independent surgical practice for at least five years.

8. They shall have to submit to examination before being accepted in the College.

SECTION 2

Examinations.

Examinations may be passed in one sitting, or may be divided into three consecutive sittings, each at one year intervals.

Examinations shall consist of:

1. Five written examinations in:

   Surgical Anatomy;
   General Surgery;
   Surgical Pathology;
   Surgical Diagnosis;
   Surgical Technic.

2. Surgical Diagnostic Clinic and Topics of general surgical importance.

3. Four oral examinations in:

   Surgical Anatomy;
   General Surgery;
   Surgical Pathology;
   Surgical Technic.

4. Operative technic on cadavers or living animals. The candidate shall perform at least eight such operations, the choice of which shall be left to the Examining Board, or the candidate will entertain the Examining Board at his own clinic where he will perform operations of his own choice on human beings.

5. If a candidate practices a surgical specialty it is obvious that the examinations will be adjusted to that particular field, of specialty.

6. The type of examination of associate members may have to be modified to suit conditions present in a given country. This may be done, providing the fundamental requirements are adequately met. This will be determined by the officers of the International College of Surgeons of that given country, who will so inform the Executive Council of the International College of Surgeons.

7. When the candidate has successfully passed the examinations this information is conveyed by the Examining Board to the Credential Committee of the given country where the applicant was examined. The Credential Committee will then vote upon the acceptance, or non-acceptance of the candidate. The result is finally transmitted to the Executive Council of the International College of Surgeons.

8. After his election the Associate Member is expected to attend faithfully all the meetings, the post graduate courses, the sectional clinics organized in his own district. Failure to do so consistently without a valid excuse will constitute cause for dismissal from the roster.

SECTION 3

Members.

1. Members must be thirty-five years of age, or over.

2. Associate members after two years to five years of membership may be elected members, providing they fulfill the requirements.

3. Candidates who are not associate members will be requested to undergo ex-

aminations as provided in Article III, Section 2.

4. Members must have been at least ten years in surgical practice. They must confine their activities to surgery alone.

5. In a general way the same requirements as described in Article III apply to them also.

SECTION 4

Fellows.

1. Are those who are forty years of age or over.

2. Fellows must be outstanding in the field of surgery, may have a national or an international reputation.

3. They may be the authors of original books or articles.

4. They may be teachers in medical schools, or may be the heads of surgical departments in important civilian, military or naval hospitals.

5. They may be elected without examination.

6. If they have no scientific writings to submit, they may be requested to present a thesis.

SECTION 5

Masters.

The Master's Degree shall correspond to the honorary degree of most organizations and is only to be conferred in recognition of some great and outstanding accomplishment in surgery, whereby humanity has benefited. The degree of Fellow may be bestowed on those living or dead, whether members of the International College of Surgeons or not.

SECTION 6

Emeritus.

The title of Emeritus shall be conferred on members of the International College of Surgeons in recognition of long and distinguished service as an officer of the International College of Surgeons.

SECTION 7

1. *National Regents,* shall be those who have been appointed National Heads of their respective countries; they shall organize and direct the Territorial Regents and Specialty Regents appointed in their respective territories.

2. *Territorial Regents,* shall be those who have been appointed to organize and direct the activities of the College in their appointed districts.

3. *Specialty Regents,* shall be those whose duty it is to supervise the progress and organize their respective specialty in their appointed territory. Their activities shall be submitted to the approval of the Territorial Regents.

4. Senior Regents are the presiding officers of the above named groups.

5. Appointments of National Regents, Territorial Regents, Specialty Regents and Senior Regents shall be made by the Chapter of each respective country. If no chapter is yet constituted, the membership of that respective country shall choose its officers.

6. The International Executive Council shall then confirm the appointments.

SECTION 8

Diplomas.

1. Any candidate who has been duly elected to the membership as an associate member, member, or fellow, and who has complied with his financial obligation to the College, shall receive a diploma of membership in the College.

2. The College Diploma shall be signed by the International College President, by the President of the House of Delegates, and by the National President of the Chapter to which the recipient belongs. If a given country is not organized in a Chapter, then the Senior Regent of that country shall sign the diploma in lieu of the National President.

3. The Diploma shall also carry the Seal of the International College of Surgeons.

ARTICLE IV

Specialties recognized as eligible in the International College of Surgeons are:

1. General Surgery;
2. Gynecology and Obstetrics;
3. Genito-Urinary Surgery;
4. Orthopedic Surgery;
5. Ophthalmology;
6. Oto-Rhino-Laryngology;
7. Plastic Surgery;
8. Industrial Surgery;
9. Thoracic Surgery;
10. Neuro Surgery;
11. Oral Surgery (M.D.)

ARTICLE V

Clinical Groups or Guilds.

1. It shall be the duty of the membership of the College in any country to organize themselves into Clinical Groups or Guilds.

2. The Clinical Groups, or Guilds, shall meet at least once a year, or oftener, if desired.

3. These meetings shall consist of:

(a) Discussion of surgical topics.

(b) Clinical demonstration of cases.

(c) Operative surgery.

4. Constructive criticism is to be encouraged by the members and graciously accepted by the person to whom it is addressed.

5. Any associate member, member or fellow, master, and Emeritus of the College has the right, and the first three named have the duty to be a member of the Clinic group or guild.

6. The mode of organizing these clinical groups or guilds is left entirely to the discretion of the given country, since the number of the members of the I. C. S. in any given country, and the conditions pertaining thereto, may differ.

ARTICLE VI

Duties and Rights of the Various Memberships.

1. *Associate Members.*

(a) The duties of associate members shall be to attend the scientific meetings organized by the Fellows and Regents of the clinical groups or guilds of the districts in which the associate members live.

(b) To attend the general meetings.

(c) To carry out the duties entrusted to them from time to time by the officers of the district to which they belong.

(d) They shall have no power to vote.

2. *Members, Fellows.*

(a) Their duties are the same as indicated in Article VI for Associate Members.

(b) They shall have the power to vote.

3. *Masters.*

(a) They shall have no duties.

(b) They shall not have the power to vote unless they are Fellows of the International College of Surgeons.

4. *Emeritus.*

(a) They shall have no duties.

(b) They shall have the power to vote.

5. *Membership Card.* All grades of membership shall receive appropriate membership cards.

ARTICLE VII

Failure to Pass Examination.

1. A candidate who fails to pass examination shall not be entitled to reimbursement of his examination fee.

2. He shall wait at least two years before seeking admission to another examination, for which no additional fee shall be charged.

Fees and Dues.

1. *Associate Members.*

(a) Associate Members shall pay a fee of twenty-five dollars or its equivalent in

money of their own country, at the time of making application for examination, said fee to defray examination expenses.

(b) When accepted as an Associate Member in the International College of Surgeons, they shall pay an additional fifty dollars, or its equivalent in the money of their own country.

(c) When graduating to membership or fellowship, they shall pay the additional fee necessary to meet the Membership or Fellowship financial requirements.

(d) They shall pay fifteen dollars annual dues.

2. *Members.*

(a) Members shall pay a fee of seventy-five dollars or its equivalent in money of their own respective countries at the time of making application for membership.

(b) When graduating to Fellowship they shall pay an additional fee of $25.00.

(c) Their dues shall be twenty dollars per annum.

3. *Fellows.*

(a) Fellows shall pay an initiation fee of $100.00.

(b) Fellows shall pay $25.00 per annum, as dues.

4. *Masters and Emeritus.*

Shall pay no dues, or fees.

5. All grades of membership are entitled to receive the Transactions without additional cost.

6. Surgeons in active governmental service, army, navy, aviation and public health service, and not engaged in private practice, shall pay 50% of the initiation fees and annual dues as specified herein.

ARTICLE IX

Distribution of Fees and Dues.

1. In any country organized into a chapter, 80% of the fees and dues collected in that chapter shall remain the property of the chapter, and 20% shall go to the International Treasurer to defray the expenses of the General Central Office. Any Chapter, however, may increase the ratio of its contributions to the General Central Office, if the chapter so chooses.

2. If a country is not organized into a definite chapter, 100% of the fees and dues collected in that country shall go to the International Treasury to defray the running expenses of the International Central Office.

ARTICLE X

Legislative Body of the International College of Surgeons.

1. *General Assembly.* The General Assembly is the supreme legislative body. It is the last court of appeal. It will meet every two years in Geneva, Switzerland, or any other place which may be chosen by the House of Delegates.

2. *House of Delegates.* The House of Delegates shall hold its regular meetings during the regular General Assembly of the College, and *shall constitute the legislative organization of the College;* the General Assembly, nevertheless, may veto any act of the House of Delegates, and may itself propose legislation by a majority vote, or enact legislation, regardless of the attitude of the House of Delegates, by a two-thirds vote.

3. The House of Delegates shall consist of:

(a) Delegates elected by the various countries to represent them respectively.

(b) The International Board of Trustees.

(c) The International Executive Council.

ARTICLE XI

Components of the House of Delegates.

Each country represented in the College shall be entitled to elect delegates to

the House of Delegates as follows: one delegate for the first hundred members, or fraction thereof; one additional delegate for the next additional one hundred members, or fraction thereof; one additional delegate for each additional two hundred members, or fraction thereof. Each such delegate may have an alternate to serve in the event that the duly elected delegate should be absent.

ARTICLE XII

Board of Trustees

1. The Board of Trustees shall be composed of the President of the College, of the President-elect, of the immediate Past President, of the three highest ranking Vice-Presidents, of the three immediate past Vice-Presidents, of the President of the House of Delegates, of the International Treasurer, of the International Executive Secretary, of the Executive Secretary of Europe, of one representative of each of the American continents, of one representative of Europe, and one for the rest of the world.

2. The President of the International College of Surgeons shall be President of the Board of Trustees; the Secretary of the College shall be the International Executive Secretary.

3. The Board of Trustees shall have full authority and power of the House of Delegates between annual meetings, unless an extra-ordinary meeting of the House of Delegates shall be called in an emergency.

4. In order to expedite transactions of business the Board of Trustees may delegate its authority to the Executive Council, which at all times, remains subservient to the Board of Trustees.

ARTICLE XIII

Executive Council

1. The Executive Council shall be composed of three members chosen by the Board of Trustees, one of whom shall be the International Executive Secretary.

ARTICLE XIV

1. *Election of Officers.* The officers of the College shall be elected by the House of Delegates at the biennial meeting of the General Assembly; the President-elect shall be elected two years in advance of the beginning of his term.

2. *Term of Office.* The President shall serve two years until a successor is elected to take his place.

The Treasurer, the International Executive Secretary and the Executive Secretary for Europe may be reelected indefinitely, but such re-elections shall be voted upon each two years at the General Assembly meeting.

3. The terms of office of all officers shall be from one meeting of the General Assembly to the following meeting two years later. If a general meeting should not be held, the term of office shall run until the next meeting takes place.

ARTICLE XV

Legal Responsibility. The Associate Members, Members, Fellows, Masters, any officer or Trustee of the International College of Surgeons shall not be held personally or collectively responsible in any manner or degree for any financial obligation or indebtedness which may be incurred by the College, or in its name, by any of its officers.

ARTICLE XVI

Fiscal Year. The fiscal year of the College shall run from January first to December thirty-first.

Annual dues shall be payable in advance.

ARTICLE XVII

Meetings.

1. The meetings of the *General Assembly* shall take place every two years

in Geneva, Switzerland, or in any other place in the world, as directed by the House of Delegates at the biennial meeting.

2. If the biennial meeting cannot be held at the place and time set because of some extraordinary reason, then the Board of Trustees shall determine the date and place for the next meeting.

3. The *various chapters* of the International College of Surgeons shall have at least one meeting a year in their respective countries.

4. The time and place for this annual meeting shall be determined by the Executive Council of each chapter.

ARTICLE XVIII

Scientific Assembly.

1. The Scientific Assembly shall devote its time and efforts to the presentation and discussion of subjects pertaining to surgery in its widest application. It shall be held at each biennial meeting.

2. *Program.* The program shall be arranged as provided in the By-Laws.

ARTICLE XIX

1. *Quorum.* At the biennial meetings of the House of Delegates, the members of the House of Delegates, of the Board of Trustees, and of the Executive Council, present at the meeting, shall constitute the quorum.

2. Members of the House of Delegates, of the Board of Trustees, and of the Executive Council if unable to attend the General Assembly meetings, may delegate their power to vote by proxy to the Secretary of the House of Delegates, or to any member of the above mentioned bodies who is in attendance, and who will then cast their ballots.

3. Proxies shall be filed with the Secretary before the opening of the meetings.

ARTICLE XX

Method of Amending.

1. At the biennial meeting, any article of the Constitution may be amended by a two-thirds vote of the delegates and their officers registered at the meeting, provided that such amendments shall have been published in the *Transactions* or otherwise made known to Chapters and to all voting members not affiliated with Chapters, by written notice given three months before the meeting.

2. During the interval from one general meeting to another, amendments may be adopted by the duly recorded vote of the Board of Trustees, provided a written notice is given three months in advance to each Chapter and to every voting member of the College not affiliated with a Chapter.

Amendments so adopted shall be subject to confirmation or rejection by the House of Delegates at the first general meeting held after the required interval of time.

3. A written request for an amendment signed by fifty members of the *College* shall be mandatory for the House of Delegates, or the Board of Trustees to consider the request and to vote upon it, as it best sees fit.

ARTICLE XXI

Procedure After Amendment Has Been Made.

1. When an amendment to the Constitution has been made by the House of Delegates, it shall be the duty of the International Executive Secretary to so notify within sixty days each component chapter of the College. If a given country has not yet been organized into a chapter, then the General Executive Secretary shall notify the Regents of that given country.

2. Any amendment to the Constitution legally made becomes binding upon each member of the College.

ARTICLE XXII

Vacancies. Any vacancy occurring in the various committees of the International College of Surgeons through

death, resignation, or any other cause, shall be filled *per interim* by the next ranking officer of that particular committee, until the Board of Trustees shall have taken decision in the matter.

ARTICLE XXIII

Autonomy of Chapters. The chapters of the various countries representing the International College of Surgeons are autonomous in their functions and are free to formulate by-laws to suit the need of their respective countries as long as they abide by the general fundamental principles as laid down by the Constitution and By-Laws of the International College of Surgeons.

ARTICLE XXIV

Bequests and Funds. Voluntary bequests from members, or any one else, if not otherwise specifically limited in their application, shall be applied by Executive Council to one or more of the following purposes:

1. For Research Fund;
2. Building Fund;
3. Miscellaneous to be decided upon and specified by the Board of Trustees;
4. Donations, gifts, bequests or legacies made to any specific chapter of any given country, shall become the unrestricted property of and shall be used at the sole discretion of that Chapter, subject, nevertheless, to any specific provisions incorporated in the deed of gift.

All Funds shall be safeguarded by the *Board of Trustees and the Executive Council.*

ARTICLE XXV

Upon the adoption of this Constitution all previous constitutions are hereby repealed and declared *null and void.*

BY-LAWS

ARTICLE I

Dues and Assessments.

1. Dues shall be payable before January first of the calendar year for which such dues are levied. Dues and assessments shall be collected by the designated officer of each country. The apportionment of these dues and assessments between the given country and the international central office shall be as stated in the Constitution, unless otherwise decided by the House of Delegates.

2. *Receipt of Dues. Qualifying Membership.* The record of payment of dues and assessments on file in the office of the Executive Secretary shall be evidence of a member's fulfillment of his financial obligation to the College and shall give him the right to participate in the activities and proceedings of the College.

3. *Arrears in Membership.* A member of the College shall be deemed delinquent in all his relationships as a member, if his dues and assessments are not paid six months after the first of January of the calendar year.

4. *Penalty for Failure to Remit.* A delinquent member, because of failure to pay his annual dues and assessments shall be held suspended, in which case he shall not be permitted to participate in any of the proceedings of the College.

5. After one year of delinquency in paying dues and assessments, a member shall be dropped from the membership roll.

6. A member who has been dropped from membership because of delinquency in paying dues and assessments may be re-instated with full privileges, provided he pays his arrears up to date.

ARTICLE II

Scientific Assembly

1. *Scientific Program.* The Scientific Assembly shall meet at each biennial meeting of the General Assembly.

2. The scientific program shall be determined by the Program Committee of the College, which shall be appointed by the Board of Trustees.

3. *Sectional Meetings.* Each country shall have at least an annual meeting of

its own. It shall elect its own Chairman and Secretary. The place of meeting shall be determined by the Council of a given country. No sectional session shall be held, however, at the same time as the General Session.

4. No paper shall be presented before a session unless the title and an abstract of the paper shall be in the hands of the Program Committee at least sixty days before the first day of the meeting.

5. No member shall read more than one paper at any one meeting, or read papers in two successive years, except on invitation of the Board of Trustees, or Council.

6. *Acceptance of Papers. Time Limit for Papers.* The time limit for the delivery of papers shall be fixed each time by the Program Committee.

7. All papers read before the College or its sections shall become the property of the College, and immediately after being read shall be deposited with the Secretary of the Section, if read before a Section, or with the General Executive Secretary, if read before the General Assembly at the biennial meeting. No author shall cause a paper to be read before the College to be published elsewhere as an original paper, until after it has been published in the official *Transactions of the College.*

ARTICLE III

1. *House of Delegates. Meetings of the House of Delegates.* The House of Delegates shall meet biennially at the time and place of the biennial meeting of the College.

2. *Ratio of Representation.* Each country represented in the College shall be entitled to representation as per Constitution. Article XI Par. 2.

3. *Quorum.* A majority of registered delegates and officers of the College shall constitute a quorum. All sessions of the House of Delegates shall be open to members of the College.

4. For the purpose of expediting proceedings, the President shall appoint from the House of Delegates, 1st, a Committee on Annual Reports; 2nd, a Committee on Resolutions, to which shall be referred all resolutions except those of an ethical nature. These shall be referred to the Council without discussion; 3rd, other committees considered necessary by the President.

5. *Order of Business.* The following shall be the order of business for the opening and final sessions of the House of Delegates.

A. *Opening Session*

1. Call to Order by the President.
2. Roll Call.
3. Consideration of minutes of the last meeting.
4. Appointment of reference committees.
5. Reports of Officers.
6. Reports of Standing Committees.
7. Reports of Special Committees.
8. Election of Committees on Nominations.
9. Introduction of the Resolutions.
10. Submission of Invitation for next Annual Meeting.
11. Miscellaneous Business.

B. *Final Session*

1. Roll Call.
2. Consideration of unfinished business of the preceding session.
3. Reports of Reference Committees.
4. Miscellaneous Business.
5. Election of the President-Elect.
6. Report of Committee on Nominations and Election of other Officers.
7. Installation of Officers for the ensuing year.
8. Announcement of Committee appointments by the newly installed Presi-

dent and action thereon by the House of Delegates.

9. Unfinished Business.

10. Final Adjournment.

The order of business may be modified by a majority of those delegates present at that session.

ARTICLE IV

Nomination and Election of Officers.

1. *Committee on Nominations.* On the first day of the annual meeting the House of Delegates shall elect a Committee on Nominations, consisting of ten delegates, one from each country represented at the meeting. The Committee on Nominations shall report to the House of Delegates the ticket containing the names of one or more members for each of the offices to be filled at that annual meeting, except that of President-elect.

The nomination for the office of President-elect shall be made from the floor of the House of Delegates.

2. Not more than three minutes shall be devoted to any nominating speech for the President-elect.

Only one speech shall be made in seconding a given nomination, and shall be limited to one minute.

3. All elections shall be by ballot. In case no nominee receives a majority of the votes on the first ballot, the nominee receiving the lowest number of votes on the ballot shall be dropped and a new ballot taken. This procedure shall be followed until one nominee is elected by receiving the majority of votes cast.

4. *Nominations from the Floor.* Additional nominations from the floor by delegates may be made.

ARTICLE V

Duties of Officers.

1. *President.* The President shall preside at all open sessions of the College, and sessions of the House of Delegates. He shall appoint all committees for the selection of which other provisions have not been made. He shall deliver the annual address at the General Session. He shall be Chairman of the Board of Trustees. He shall perform such other duties as may pertain to the principal administrative officer of a corporation. He shall be ex-officio a member of all committees of this session. As immediate past President, he shall be a member of the Board of Trustees for a term of two years, immediately succeeding his term of office.

2. *President-elect.* The President-elect shall take office at the expiration of the term of the President.

3. *Vice-Presidents.* The Vice-Presidents shall be members of the Board of Trustees. They shall assume, in their respective order of seniority, the duties of the President during the absence or disability of the latter. If the office of the President becomes vacant, the Senior Vice-President shall succeed to the Presidency.

4. *Treasurer.* The Treasurer shall receive all funds due to the College from any source whatsoever, in the manner as outlined by the Constitution. He shall deposit and keep the funds of the Treasury in a way approved by the Board of Trustees. He shall keep a complete set of books concerning the receipts and expenditures of the College, subject to the direction of the Board of Trustees. He shall pay money out of the Treasury upon such vouchers as shall be designated by the Board of Trustees. He shall render an audited annual trial balance statement of his accounts to the Board of Trustees. At the expense of the College he shall give bond in such amount as shall be required by the Board of Trustees. He shall be a member of the Board of Trustees.

5. *International Executive Secretary.* The International Executive Secretary shall be ex-officio Secretary of the

College, of the Board of Trustees, and of all its committees. He shall be the executive agent of the College, transacting its business under the direction of the Board of Trustees and of the Executive Council. He shall collect all dues from the chapters of the College in the ratio provided by the Constitution and pay them to the International Treasurer.

He shall have charge of the business office of the College and may employ such aid as shall be authorized by the Board of Trustees. He shall be the custodian of all books and papers belonging to the College, except those of the Treasury.

He shall provide for the registration of members at the annual meetings and shall provide for reporting the proceedings of the annual meetings. He shall conduct the official correspondence, notifying members of the meetings, officers of their committees of their appointments and duties, and shall perform such other duties as may be assigned him by the Board of Trustees. At the expense of the College he shall give bond in such amount as may be required by the Board of Trustees.

6. *Executive Secretary-Treasurer for Europe.* The Executive Secretary for Europe shall be ex-officio a member of the Board of Trustees. He shall be executive agent of the College in Europe, transacting its business under the direction of the Board of Trustees and of the Executive Council. He shall collect all dues within his jurisdiction from Chapters, and from Members, Fellows in countries without chapters, and pay them to the International Executive Secretary.

7. *Executive Secretary-Treasurer for Asia* shall possess in his own continent the same powers and duties as those provided for the Executive Treasurer of Europe.

8. *Executive Secretaries-Treasurers* for other continents may be provided for at the discretion of the Board of Trustees and shall possess then the same powers and duties as those provided for the Executive Secretary-Treasurer for Europe and Asia.

ARTICLE VI

Eligibility of Officers for Re-election

1. *Re-election of Officers.* The retiring President shall not be eligible for re-election as President-elect.

2. The Treasurer may serve indefinitely, providing his election is confirmed at each biennial meeting.

3. The International Executive Secretary and the Executive Secretary for Europe may serve indefinitely, providing their re-election is confirmed at each biennial meeting.

Nothing in these By-laws shall be construed as forbidding the later re-election of officers, excepting the President, after an interruption of consecutive service.

ARTICLE VII

The Board of Trustees

1. *Meetings of the Board of Trustees* The Board of Trustees shall hold meetings during the biennial meetings of the College and at such other times as necessity may require, subject to the call of the President, or in petition of three members of the Board of Trustees.

2. The Board of Trustees shall record in the Transactions of the College its meetings and activities.

3. The Board of Trustees shall be the Executive Body of the House of Delegates and between meetings shall exercise all powers conferred to the House of

Delegates by its Constitution and By-laws.

4. In the exercise of the powers thus conferred upon it, the Board of Trustees shall take no action contravening any general policy, which shall have been adopted by the House of Delegates, and which at the time is still in effect.

5. The Board of Trustees shall have direction of the investment and reinvestment of the funds of the College.

6. The Board of Trustees shall determine the character and scope of the scientific proceedings of the College.

7. The Board of Trustees shall cause to be issued a program announcing the order in which papers and discussions are to be presented.

8. The Board of Trustees shall be the Board of Censors of the College, considering all questions involving the rights and standing of members in their relationships to other members, and to the component countries of the College.

All questions of ethical nature shall be referred to the Board of Trustees.

The Board of Trustees shall hear and decide all questions of discipline affecting the conduct of the members of the College, or of its component countries. Its decisions including questions regarding the rights of membership in the College shall be *final.*

9. The Board of Trustees shall provide for the publication of the *Transactions of the International College of Surgeons.*

10 Until such time as the Board of Trustees deems it expedient to publish the Transactions hereinbefore referred to, the Transactions owned and published by the United States Chapter of the International College of Surgeons may be used by the International Board of Trustees as their official publication for international purposes.

11. The Board of Trustees shall have the power to employ an Executive Secretary who need not be a physician, or a member of the College, and such other employees as it may deem necessary.

12. The Board of Trustees shall provide such offices for the headquarters as may be required to properly conduct its business.

ARTICLE VIII

Auditing and Appropriation Committee. The President, with the consent of the Board of Trustees, shall appoint an auditing and appropriation committee of three members, who shall serve for a term of two years. This Auditing and Appropriation Committee shall prescribe the method of accounting to be used for all accounts of the College. It shall prepare and present annually to the Board of Trustees a budget providing for the necessary expense of the College. Any surplus or balance of funds for a given term of two years shall revert to the general fund.

Salaries. The Auditing and Appropriation Committee may allow the payment of necessary expenses incurred by officers in the discharge of their duties to the College. This shall not include the expenses paid in connection with the biennial meeting, except for the International Executive Secretary, whose expenses shall be paid.

Salaries of all employers and officers shall be fixed by the Board of Trustees.

Vacancies. The Board of Trustees shall fill by appointment all vacancies in the offices occurring in the interval between the biennial meetings. The appointee shall serve until his successor has been elected and qualified.

ARTICLE IX

Component Countries of the College

1. *Organization of Societies.* Upon application to the House of Delegates

any country may organize into a Chapter in conformity with the Constitution and By-Laws, providing that their Constitution and By-Laws have been submitted to the Board of Trustees and have received their approval.

Upon application to, and recommendation by the Board of Trustees, the House of Delegates shall provide and issue charters to the component chapters organized in conformity with the Constitution and By-Laws; these charters shall be signed by the President and the Executive Secretary.

2. *Only one chapter shall be chartered in each country.*

3. *Custodian of the Charter.* The charter of each component chapter as issued by the House of Delegates shall be preserved, and shall be in the custody of the Secretary of each component chapter at all times.

4. *Constitution of Component Chapters.* Each component chapter shall have a constitution and by-laws which shall be in conformity with the Constitution of the International College of Surgeons.

5. Each component chapter is autonomous.

6. *Changes in the Constitution and By-Laws.* Whenever a component chapter shall have made a change or amendment in its constitution or by-laws, such change shall be filed with the International Board of Trustees.

7. *Penalties Imposed on Component Chapters.* Should a chapter be accused of being guilty of acts conflicting with the International Constitution and By-Laws, then a judicial council composed of five members, two from the House of Delegates, two from the members of the accused chapter, and one officer appointed by the Board of Trustees shall examine into the accusations against any chapter, and if there is ground for these accusations, the accused chapter shall be ordered to hold an election to delete by resolutions any legislation which had come to conflict with the International Constitution and By-Laws. For this purpose the two judges who have represented the Chapter in the trial shall be the commissioners charged with the execution of the mandate as outlined by the International Board of Trustees.

ARTICLE X

Membership Qualifications. Each component chapter shall judge of the qualifications of its members. However, the final decision in admitting any one to membership rests with the International Executive Council.

2. *Disciplinary Procedure.* No disciplinary action shall be taken against a member of a component chapter without serving the accused member at least sixty days in advance of trial with a written copy of the charges against him, by registered mail, and afford him the opportunity of hearing, or hearings. If a hearing, or hearings are held, records of these shall be kept by the secretary of the component chapter.

3. *Final Decision.* Final decision in the case shall be forwarded by the Secretary of the component chapter to the International Executive Secretary.

4. *Appeals.* Any member against whom disciplinary action has been taken who feels that he has not been given a fair trial in accordance with the provisions of the Constitution and By-Laws of the International College of Surgeons, as well as of the given chapter, shall have the right to appeal to the Board of Trustees.

His right to appeal shall be made within ninety days after the appellant has been given written notice of his suspension or expulsion.

5. Upon receipt of the appeal, the international executive secretary shall write immediately to both the President and the Secretary of the component

Chapter informing them that the appeal has been made, and demanding certified copies of all records in the case. If the component chapter fails to submit the certified copies within ninety days, the appellant shall be re-instated to membership in good standing by the Board of Trustees.

The Board of Trustees shall permit both the appellant and the Officers of the Component chapter an opportunity to be heard either orally, or by documentary evidence.

ARTICLE XI

Upon adoption of these By-Laws all previous By-Laws are hereby repealed and declared *null and void.*

Constitution and By-Laws of the International College of Surgeons

The present Constitution and By-Laws of the International College of Surgeons have been found inadequate in many ways. In consequence, a new Constitution and new By-Laws have been devised, which seem to meet more adequately the present needs and aims of the International College of Surgeons.

The new Constitution and By-Laws have the complete endorsement of the United States Chapter of the International College of Surgeons and of the International officers.

The new Constitution and By-Laws will be submitted for acceptance or non-acceptance to the Special General Assembly of the membership called in executive session by Dr. H. Lyons-Hunt, Director-General, at Philadelphia, Pennsylvania, on October 14th, 1938, in conjunction with the Annual Meeting of the U. S. Chapter of the International College of Surgeons.

The members who may be unable to attend the Special General Assembly will be able to vote by mail.

The new Constitution and By-Laws are hereby presented.

Signed: Dr. H. Lyons-Hunt,
Director-General.

Dr. André Crotti,
President,
U. S. Chapter, I.C.S. (Acting temporarily as International Secretary-Treasurer).